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WESTERN AMERICANA

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Wild Life on the Rockies

LONG'S PEAK FROM THE EAST

Wild Life on the Rockies

By
bijah
Enos A. Mills

With Illustrations from Photographs

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To
John Muir

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Preface

This book contains the record of a few of the many happy days and novel experiences which I have had in the wilds. For more than twenty years it has been my good fortune to live most of the time with nature, on the mountains of the West. I have made scores of long exploring rambles over the mountains in every season of the year, a nature-lover charmed with the birds and the trees. On my later excursions I have gone alone and without firearms. During three succeeding winters, in which I was a Government Experiment Officer and called the "State Snow Observer," I scaled many of the higher peaks of the Rockies and made many studies on the upper slopes of these mountains.

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E. A. M.

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Colorado Snow Observer

Colorado Snow Observer

"WHERE are you going?" was the question asked me one snowy winter day. After hearing that I was off on a camping-trip, to be gone several days, and that the place where I intended to camp was in deep snow on the upper slopes of the Rockies, the questioners laughed heartily. Knowing me, some questioners realized that I was in earnest, and all that they could say in the nature of argument or appeal was said to cause me to "forego the folly." But I went, and in the romance of a new world—on the Rockies in winter—I lived intensely through ten strong days and nights, and gave to my life new and rare experiences. Afterwards I made other winter excursions, all of which were stirring and satisfactory. The recollection of these winter experiences is as complete and exhilarating as any in the vista of my memory.

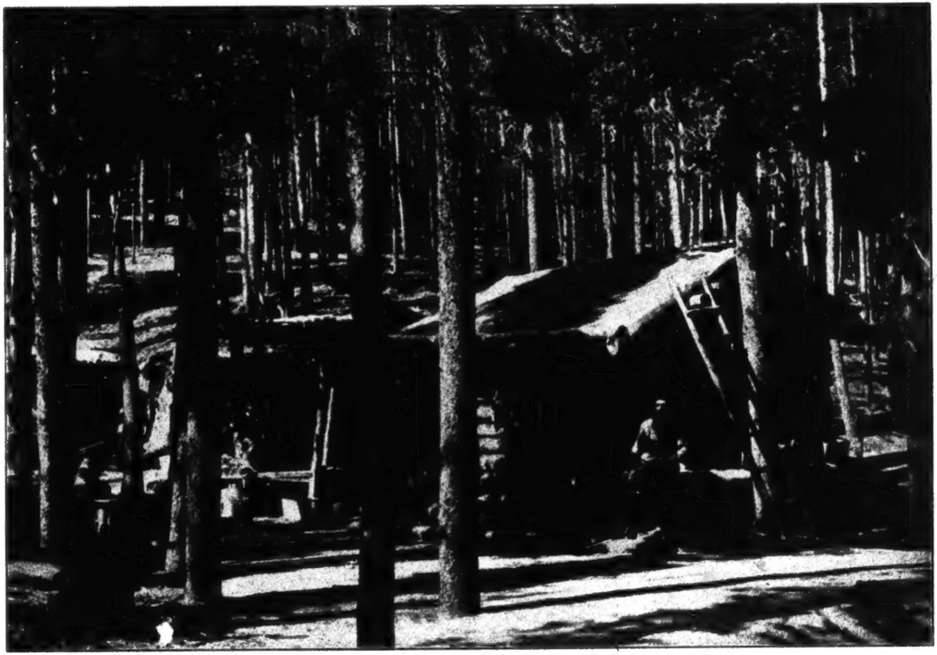
Some years after my first winter camping-trip, I found myself holding a strange position,—that of the "State Snow Observer of Colorado." I have never heard of another position like it. Professor L. G. Carpenter, the celebrated irrigation engineer, was making some original investigations concerning forests and the water-supply. He persuaded me to take the position, and under his direction I worked as a government experiment officer. For three successive winters I traversed the upper slopes of the Rockies and explored the crest of the continent, alone. While on this work, I was instructed to make notes on "those things that are likely to be of interest or value to the Department of Agriculture or the Weather Bureau," — and to be careful not to lose my life.

On these winter trips I carried with me a camera, thermometer, barometer, compass, notebook, and folding axe. The food carried usually was only raisins. I left all bedding behind. Notwithstanding I was alone and in the wilds, I did not carry any kind of a gun.

The work made it necessary for me to ramble the wintry heights in sunshine and storm. Often I was out, or rather up, in a blizzard, and on more than one occasion I was out for two weeks on the snow-drifted crest of the continent, without seeing any one. I went beyond the trails and visited the silent places alone. I invaded gulches, eagerly walked the splendid forest aisles, wandered in the dazzling glare on dreary alpine moorlands, and scaled the peaks over mantles of ice and snow. I had many experiences, — amusing, dangerous, and exciting. There was abundance of life and fun in the work. On many an evening darkness captured me and compelled me to spend the night in the wilds without bedding, and often without food. During these nights I kept a camp-fire blazing until daylight released me. When the night was mild, I managed to sleep a little, — in installments, — rising from time to time to give wood to the eager fire. Sometimes a scarcity of wood kept me busy gathering it all night; and sometimes the night was so cold that I did not risk going to sleep. During these nights I watched my flaming fountain of fire brighten, fade, surge, and change, or shower its spray of sparks upon the surrounding snowflowers. Strange reveries I have had by these winter camp-fires. On a few occasions mountain lions interrupted my thoughts with their piercing, lonely cries; and more than once a reverie was pleasantly changed by the whisper of a chickadee in some near-by tree as a cold comrade snuggled up to it. Even during the worst of nights, when I thought of my lot at all. I considered it better than that of those who were sick in houses or asleep in the stuffy, deadly air of the slums.

> " Believe me, 't is something to be cast
> Face to face with thine own self at last."

Not all nights were spent outdoors. Many a royal evening was passed in the cabin of a miner or a prospector, or by the fireside of a family who for some reason had left the old home behind and sought seclusion in wild scenes, miles from neighbors. Among Colorado's mountains there are an unusual number of strong characters who are trying again. They are strong because broken plans, lost fortunes, or shattered health elsewhere have not ended their efforts or changed their ideals. Many are trying to restore health, some are trying again to prosper, others are just making a start in



A MAN WITH A HISTORY

life, but there are a few who, far from the madding crowd, are living happily the simple life. Sincerity, hope, and repose enrich the lives of those who live among the crags and pines of mountain fastnesses. Many a happy evening I have had with a family, or an old prospector, who gave me interesting scraps of autobiography along with a lodging for the night.

The snow-fall on the mountains of Colorado is very unevenly distributed, and is scattered through seven months of the year. Two places only a few miles apart, and separated by a mountain-range, may have very different climates, and one of these may have twice as much snow-fall as the other. On the middle of the upper slopes of the mountains the snow sometimes falls during seven months of the year. At an altitude of eleven thousand feet the annual fall amounts to eighteen feet. This is several times the amount that falls at an altitude of six thousand feet. In a locality near Crested Butte the annual fall is thirty feet, and during snowy winters even fifty feet. Most winter days are clear, and the climate less severe than is usually imagined.

One winter I walked on snowshoes on the upper slopes of the "snowy" range of the Rockies, from the Wyoming line on the north to near the New Mexico line on the south. This was a long walk, and it was full of amusement and adventure. I walked most of the way on the crest of the continent. The broken nature of the surface gave me ups and downs. Sometimes I would descend to the level of seven thousand feet, and occasionally I climbed some peak that was fourteen thousand feet above the tides.

I had not been out many days on this trip when I was caught in a storm on the heights above tree-line. I at once started downward for the woods. The way among the crags and precipices was slippery; the wind threatened every moment to hurl me over a cliff; the wind-blown snow filled the air so that I could see only a few feet, and at times not at all. But it was too cold to stop. For two hours I fought my way downward through the storm, and so dark was it during the last half-hour that I literally felt my way with my staff. Once in the woods, I took off a snowshoe, dug a large hole in the snow down to the earth, built a fire, and soon forgot the perilous descent. After eating from my supply of raisins, I dozed a little, and woke to find all calm and the moon shining in glory on a snowy mountain-world of peaks and pines. I put on my snowshoes, climbed upward beneath the moon, and from the summit of Lead Mountain, thirteen thousand feet high, saw the sun rise in splendor on a world of white.

The tracks and records in the snow which I read in passing made something of a daily newspaper for me. They told much of news of the wilds. Sometimes I read of the games that the snowshoe rabbit had played; of a starving time among the brave mountain sheep on the heights; of the quiet content in the ptarmigan neighborhood; of the dinner that the pines had given the grouse; of the amusements and exercises on the deer's stamping-ground; of the cunning of foxes; of the visits of magpies, the excursions of lynxes, and the red records of mountain lions.

The mountain lion is something of a game-hog and an epicure. He prefers warm blood for every meal, and is very wasteful. I have much evidence against him; his worst one-day record that I have shows five tragedies. In this time he killed a mountain sheep, a fawn, a grouse, a rabbit, and a porcupine; and as if this were not enough, he was about to kill another sheep when a dark object on snowshoes shot down the slope near by and disturbed him. The instances where he has attacked human beings are rare, but he will watch and follow one for hours with the utmost caution and curiosity. One morning after a night-journey through the wood, I turned back and doubled my trail. After going a short distance I came to the track of a lion alongside my own. I went back several miles and read the lion's movements. He had watched me closely. At every place where I rested he had crept up close, and at the place where I had sat down against a stump he had crept up to the opposite side of the stump,—and I fear while I dozed!

One night during this expedition I had lodging in an old and isolated prospector's cabin, with two young men who had very long hair. For months they had been in seclusion, "gathering wonderful herbs," hunting out prescriptions for every human ill, and waiting for their hair to grow long. I hope they prepared some helpful, or at least harmless prescriptions, for, ere this, they have become picturesque, and I fear prosperous, medicine-men on some populous street-corner. One day I had dinner on the summit of Mt. Lincoln, fourteen thousand feet above the ocean. I ate with some miners who were digging out their fortune; and was "the only caller in five months."

But I was not always a welcome guest. At one of the big mining-camps I stopped for mail and to rest for a day or so. I was all "rags and tags," and had several broken strata of geology and charcoal on my face in addition. Before I had got well into the town, from all quarters came dogs, each of which seemed determined to make it necessary for me to buy some clothes. As I had already determined to do this, I kept the dogs at bay for a time, and then sought refuge in a first-class hotel; from this the porter, stimulated by an excited order from the clerk, promptly and literally kicked me out!

In the robings of winter how different the mountains than when dressed in the bloom of summer! In no place did the change seem more marked than on some terrace over which summer flung the lacy drapery of a white cascade, or where a wild waterfall "leapt in glory." These places in winter were glorified with the fine arts of ice, — "frozen music," as some one has defined architecture, — for here winter had constructed from water a wondrous array of columns, panels, filigree, fretwork, relief-work, arches, giant icicles, and stalagmites as large as, and in ways resembling, a big tree with a fluted full-length mantle of ice.

Along the way were extensive areas covered with the ruins of fire-killed trees. Most of the forest fires which had caused these were the result of carelessness. The timber destroyed by these fires had been needed by thousands of home-builders. The robes of beauty which they had burned from the mountain-sides are a serious loss. These fire ruins preyed upon me, and I resolved to do something to save the remaining forests. The opportunity came shortly after the resolution was made.

Two days before reaching the objective point, farthest south, my food gave out, and I fasted. But as soon as I reached the end, I started to descend the heights, and very naturally knocked at the door of the first house I came to, and asked for something to eat. I supposed I was at a pioneer's cabin. A handsome, neatly dressed young lady came to the door, and when her eyes fell upon me she blushed and then turned pale. I was sorry that my appearance had alarmed her, but I repeated my request for something to eat. Just then, through the half-open door behind the young lady, came the laughter of children, and a glance into the room told me that I was before a mountain schoolhouse. By this time the teacher, to whom I was talking, startled me by inviting me in. As I sat eating a luncheon to which the teacher and each one of the six school-children contributed, the teacher explained to me that she was recently from the East, and that I so well fitted her ideas of a Western desperado that she was frightened at first. When I finished eating, I made my first after-dinner speech; it was also my first attempt to make a forestry address. One point I tried to bring out was concerning the destruction wrought by forest fires. Among other things I said: "During the past few years in Colorado, forest fires, which ought never to have been started, have destroyed many million dollars' worth of timber, and the area over which the fires have burned aggregates twenty-five thousand square miles. This area of forest would put on the equator an evergreen-forest belt one mile wide that would reach entirely around the world. Along with this forest have perished many of the animals and thousands of beautiful birds who had homes in it."

I finally bade all good-bye, went on my way rejoicing, and in due course arrived at Denver, where a record of one of my longest winter excursions was written.

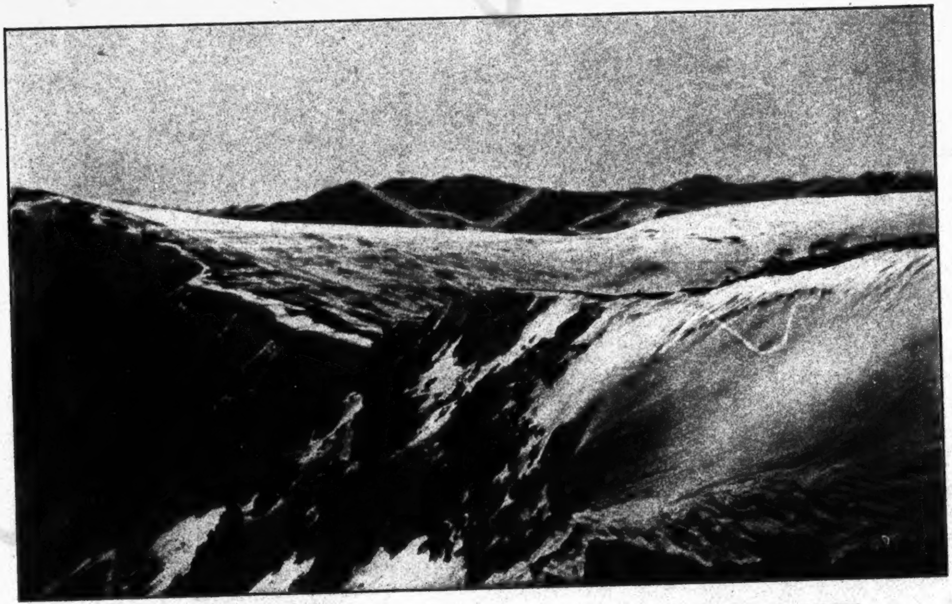
In order to give an idea of one of my briefer winter walks, I close this chapter with an account of a round-trip snowshoe journey from Estes Park to Grand Lake, the most thrilling and adventurous that has ever entertained me on the trail.

One February morning I set off alone on snowshoes to cross the "range," for the purpose of making some snow-measurements. The nature of my work for the State required the closest observation of the character and extent of the snow in the mountains. I hoped to get to Grand Lake for the night, but I was on the east side of the range, and Grand Lake was on the west. Along the twenty-five miles of trail there was only wilderness, without a single house. The trail was steep and the snow very soft. Five hours were spent in gaining timber-line, which was only six miles from my starting-place, but four thousand feet above it. Rising in bold grandeur above me was the summit of Long's Peak, and this, with the great hills of drifted snow, out of which here and there a dwarfed and distorted tree thrust its top, made timber-line seem weird and lonely.

From this point the trail wound for six miles across bleak heights before it came down to timber on the other side of the range. I set forward as rapidly as possible, for the northern sky looked stormy. I must not only climb up fifteen hundred feet, but must also skirt the icy edges of several precipices in order to gain the summit. My friends had warned me that the trip was a foolhardy one even on a clear, calm day, but I was fated to receive the fury of a snowstorm while on the most broken portion of the trail.

The tempest came on with deadly cold and almost blinding violence. The wind came with awful surges, and roared and boomed among the crags. The clouds dashed and seethed along the surface, shutting out all landmarks. I was every moment in fear of slipping or being blown over a precipice, but there was no shelter; I was on the roof of the continent, twelve thousand five hundred feet above sea-level, and to stop in the bitter cold meant death.

It was still three miles to timber on the west slope, and I found it impossible to keep the trail. Fearing to perish if I tried to follow even the general course of the trail, I abandoned it altogether, and started for the head of a gorge, down which I thought it would be possible to climb to the nearest timber. Nothing definite could be seen. The clouds on the snowy surface and the light electrified air gave the eye only optical illusions. The outline of every object was topsy-turvy and dim. The large stones that I thought to step



THE CREST OF THE CONTINENT IN WINTER, 13,000 FEET ABOVE SEA-LEVEL

on were not there; and, when apparently passing others, I bumped into them. Several times I fell headlong by stepping out for a drift and finding a depression.

In the midst of these illusions I walked out on a snow-cornice that overhung a precipice! Unable to see clearly, I had no realization of my danger until I felt the snow giving way beneath me. I had seen the precipice in summer, and knew it was more than a thousand feet to the bottom! Down I tumbled, carrying a large fragment of the snow-cornice with me. I could see nothing, and I was entirely helpless. Then, just as the full comprehension of the awful thing that was happening swept over me, the snow falling beneath me suddenly stopped. I plunged into it, completely burying myself. Then I, too, no longer moved downward; my mind gradually admitted the knowledge that my body, together with a considerable mass of the snow, had fallen upon a narrow ledge and caught there. More of the snow came tumbling after me, and it was a matter of some minutes before I succeeded in extricating myself.

When I thrust my head out of the snow-mass and looked about me, I was first appalled by a glance outward, which revealed the terrible height of the precipice on the face of which I was hanging. Then I was relieved by a glance upward, which showed me that I was only some twenty feet from the top, and that a return thither would not be very difficult. But if I had walked from the top a few feet farther back, I should have fallen a quarter of a mile.

One of my snowshoes came off as I struggled out, so I took off the other shoe and used it as a scoop to uncover the lost web. But it proved very slow and dangerous work. With both shoes off I sank chest-deep in the snow; if I ventured too near the edge of the ledge, the snow would probably slip off and carry me to the bottom of the precipice. It was only after two hours of effort that the shoe was recovered.

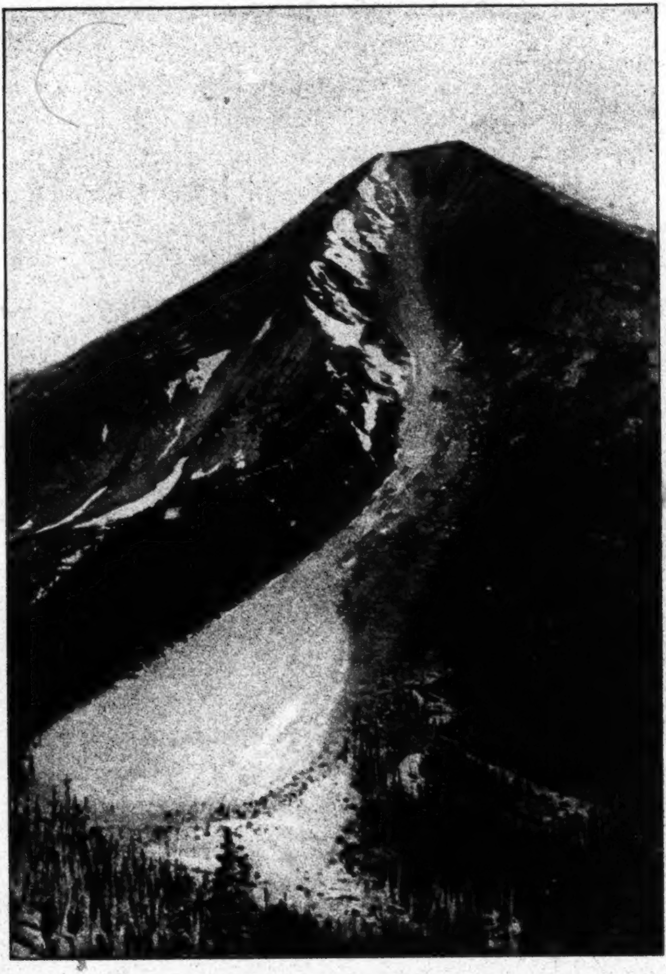
When I first struggled to the surface of the snow on the ledge, I looked at once to find a way back to the top of the precipice. I quickly saw that by following the ledge a few yards beneath the unbroken snow-cornice I could climb to the top over some jagged rocks. As soon as I had recovered the shoe, I started round the ledge. When I had almost reached the jagged rocks, the snow-cornice caved upon me, and not only buried me, but came perilously near knocking me into the depths beneath. But at last I stood upon the top in safety.

A short walk from the top brought me out upon a high hill of snow that sloped steeply down into the woods. The snow was soft, and I sat down in it and slid "a blue streak"—my blue overalls recording the streak—for a quarter of a mile, and then came to a sudden and confusing stop; one of my webs had caught on a spine of one of the dwarfed and almost buried trees at timber-line.

When I had traveled a short distance below timber-line, a fearful crashing caused me to turn; I was in time to see fragments of snow flying in all directions, and snow-dust boiling up in a great geyser column. A snow-slide had swept down and struck a granite cliff. As I stood there, another slide started on the heights above timber, and with a far-off roar swept down in awful magnificence, with a comet-like tail of snow-dust. Just at timber-line it struck a ledge and glanced to one side, and at the same time shot up into the air so high that for an instant I saw the treetops beneath it. But it came back to earth with awful force, and I felt the ground tremble as it crushed a wide way through the woods. It finally brought up at the bottom of a gulch with a wreckage of hundreds of noble spruce trees that it had crushed down and swept before it.

As I had left the trail on the heights, I was now far from it and in a rugged and wholly unfrequented section, so that coming upon the fresh tracks of a mountain lion did not surprise me. But I was not prepared for what occurred soon afterward. Noticing a steamy vapor rising from a hole in the snow by the protruding roots of an overturned tree, I walked to the hole to learn the cause of it. One whiff of the vapor stiffened my hair and limbered my legs. I shot down a steep slope, dodging trees and rocks. The vapor was rank with the odor from a bear.

At the bottom of the slope I found the frozen



A SNOW-SLIDE TRACK

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surface of a stream much easier walking than the soft snow. All went well until I came to some rapids, where, with no warning whatever, the thin ice dropped me into the cold current among the boulders. I scrambled to my feet, with the ice flying like broken glass. The water came only a little above my knees, but as I had gone under the surface, and was completely drenched, I made an enthusiastic move toward the bank. Now snowshoes are not adapted for walking either in swift water or among boulders. I realized this thoroughly after they had several times tripped me, sprawling, into the liquid cold. Finally I sat down in the water, took them off, and came out gracefully.

I gained the bank with chattering teeth and an icy armor. My pocket thermometer showed two degrees above zero. Another storm was bearing down upon me from the range, and the sun was sinking. But the worst of it all was that there were several miles of rough and strange country between me and Grand Lake that would have to be made in the dark. I did not care to take any more chances on the ice, so I spent a hard hour climbing out of the cañon. The climb warmed me and set my clothes steaming.

My watch indicated six o'clock. A fine snow was falling, and it was dark and cold. I had been exercising for twelve hours without rest, and had eaten nothing since the previous day, as I never take breakfast. I made a fire and lay down on a rock by it to relax, and also to dry my clothes. In half an hour I started on again. Rocky and forest-covered ridges lay between me and Grand Lake. In the darkness I certainly took the worst way. I met with too much resistance in the thickets and too little on the slippery places, so that when, at eleven o'clock that night, I entered a Grand Lake Hotel, my appearance was not prepossessing.

The next day, after a few snow-measurements, I set off to re-cross the range. In order to avoid warm bear-dens and cold streams, I took a different route. It was a much longer way than the one I had come by, so I went to a hunter's deserted cabin for the night. The cabin had no door, and I could see the stars through the roof. The old sheet-iron stove was badly rusted and broken. Most of the night I spent chopping wood, and I did not sleep at all. But I had a good rest by the stove, where I read a little from a musty pamphlet on palmistry that I found between the logs of the cabin. I always carry candles with me. When the wind is blowing, the wood damp, and the fingers numb, they are of inestimable value in kindling a fire. I do not carry firearms, and during the night, when a lion gave a blood-freezing screech, I wished he were somewhere else.

Daylight found me climbing toward the top of the range through the Medicine Bow National Forest, among some of the noblest evergreens in Colorado. When the sun came over the range, the silent forest vistas became magnificent with bright lights and deep shadows. At timber-line the bald rounded summit of the range, like a gigantic white turtle, rose a thousand feet above me. The slope was steep and very icy; a gusty wind whirled me about. Climbing to the top would be like going up a steep ice-covered house-roof. It would be a dangerous and barely possible undertaking. But as I did not have courage enough to retreat, I threw off my snowshoes and started up. I cut a place in the ice for every step. There was nothing to hold to, and a slip meant a fatal slide.

With rushes from every quarter, the wind did its best to freeze or overturn me. My ears froze, and my fingers grew so cold that they could hardly hold the ice-axe. But after an hour of constant peril and ever-increasing exhaustion, I got above the last ice and stood upon the snow. The snow was solidly packed, and, leaving my snowshoes strapped across my shoulders, I went scrambling up. Near the top of the range a ledge of granite cropped out through the snow, and toward this I hurried. Before making a final spurt to the ledge, I paused to breathe. As I stopped, I was startled by sounds like the creaking of wheels on a cold, snowy street. The snow beneath me was slipping! I had started a snowslide.

Almost instantly the slide started down the slope with me on it. The direction in which it was going and the speed it was making would in a few seconds carry it down two thousand feet of slope, where it would leap over a precipice into the woods. I was on the very upper edge of the snow that had started, and this was the tail-end of the slide. I tried to stand up in the rushing snow, but its speed knocked my feet from under me, and in an instant I was rolled beneath the surface. Beneath the snow, I went tumbling on with it for what seemed like a long time, but I know, of course, that it was for only a second or two; then my feet struck against something solid. I was instantly flung to the surface again, where I either was spilled off, or else fell through, the end of the slide, and came to a stop on the scraped and frozen ground, out of the grasp of the terrible snow.

I leaped to my feet and saw the slide sweep on in most impressive magnificence. At the front end of the slide the snow piled higher and higher, while following in its wake were splendid streamers and scrolls of snow-dust. I lost no time in getting to the top, and set off southward, where, after six miles, I should come to the trail that led to my starting-place on the east side of the range. After I had made about three miles, the cold clouds closed in, and everything was fogged. A chilly half-hour's wait and the clouds broke up. I had lost my ten-foot staff in the snow-slide, and feeling for precipices without it would probably bring me out upon another snow-cornice, so I took no chances.

I was twelve thousand five hundred feet above sea-level when the clouds broke up, and from this great height I looked down upon what seemed to be the margin of the polar world. It was intensely cold, but the sun shone with dazzling glare, and the wilderness of snowy peaks came out like a grand and jagged ice-field in the far south. Halos and peculiarly luminous balls floated through the color-tinged and electrical air. The horizon had a touch of cobalt blue, and on the dome above, white flushes appeared and disappeared like faint auroras. After five hours on these silent but imposing heights I struck my first day's trail, and began a wild and merry coast down among the rocks and trees to my starting-place.

I hope to have more winter excursions, but perhaps I have had my share. At the bare thought of those winter experiences I am again on an unsheltered peak struggling in a storm; or I am in a calm and spendid forest upon whose snowy, peaceful aisles fall the purple shadows of crags and pines.

The Story of a Thousand-Year Pine

The Story of a Thousand-Year Pine

THE peculiar charm and fascination that trees exert over many people I had always felt from childhood, but it was that great nature-lover, John Muir, who first showed me how and where to learn their language. Few trees, however, ever held for me such an attraction as did a gigantic and venerable yellow pine which I discovered one autumn day several years ago while exploring the southern Rockies. It grew within sight of the Cliff-Dwellers' Mesa Verde, which stands at the corner of four States, and as I came upon it one evening just as the sun was setting over that mysterious tableland, its character and heroic proportions made an impression upon me that I shall never forget, and which familiar acquaintance only served to deepen while it yet lived and before the axeman came. Many a time I returned to build my camp-fire by it and have a day or a night in its solitary and noble company. I learned afterwards that it had been given the name "Old Pine," and it certainly had an impressiveness quite compatible with the age and dignity which go with a thousand years of life.

When, one day, the sawmill-man at Mancos wrote, "Come, we are about to log your old pine," I started at once, regretting that a thing which seemed to me so human, as well as so noble, must be killed.

I went out with the axemen who were to cut the old pine down. A grand and impressive tree he was. Never have I seen so much individuality, so much character, in a tree. Although lightning had given him a bald crown, he was still a healthy giant, and was waving evergreen banners more than one hundred and fifteen feet above the earth. His massive trunk, eight feet in diameter on a level with my breast, was covered with a thick, rough, golden-brown bark which was broken into irregular plates. Several of his arms were bent and broken. Altogether, he presented a time-worn but heroic appearance.

A VETERAN WESTERN YELLOW PINE

Story of a Thousand-Year Pine

It is almost a marvel that trees should live to become the oldest of living things. Fastened in one place, their struggle is incessant and severe. From the moment a baby tree is born — from the instant it casts its tiny shadow upon the ground — until death, it is in danger from insects and animals. It cannot move to avoid danger. It cannot run away to escape enemies. Fixed in one spot, almost helpless, it must endure flood and drought, fire and storm, insects and earthquakes, or die.

Trees, like people, struggle for existence, and an aged tree, like an aged person, has not only a striking appearance, but an interesting biography. I have read the autobiographies of many century-old trees, and have found their life-stories strange and impressive. The yearly growth, or annual ring of wood with which trees envelop themselves, is embossed with so many of their experiences that this annual ring of growth literally forms an autobiographic diary of the tree's life.

I wanted to read Old Pine's autobiography. A veteran pine that had stood on the southern Rockies and struggled and triumphed through the changing seasons of hundreds of years must contain a rare life-story. From his stand between the Mesa and the pine-plumed mountain, he had seen the panorama of the seasons and many a strange pageant; he had beheld what scenes of animal and human strife, what storms and convulsions of nature! Many a wondrous secret he had locked within his tree soul. Yet, although he had not recorded what he had *seen*, I knew that he had kept a fairly accurate diary of his own personal experience. This I knew the saw would reveal, and this I had determined to see.

Nature matures a million conifer seeds for each one she chooses for growth, so we can only speculate as to the selection of the seed from which sprung this storied pine. It may be that the cone in which it matured was crushed into the earth by the hoof of a passing deer. It may have been hidden by a jay; or, as is more likely, it may have grown from one of the uneaten cones which a Douglas squirrel had buried for winter food. Douglas squirrels are the principal nurserymen for all the Western pineries. Each autumn they harvest a heavy percentage of the cone crop and bury it for winter. The seeds in the uneaten cones germinate, and each year countless thousands of conifers grow from the seeds planted by these squirrels. It may be that the seed from which Old Pine burst had been planted by an ancient ancestor of the protesting Douglas who was in possession, or this seed may have been in a cone which simply bounded or blew into a hole, where the seed found sufficient mould and moisture to give it a start in life.

Two loggers swung their axes: At the first blow a Douglas squirrel came out of a hole at the base of a dead limb near the top of the tree and made an aggressive claim of ownership, setting up a vociferous protest against the cutting. As his voice was unheeded, he came scolding down the tree, jumped off one of the lower limbs, and took refuge in a young pine that stood near by. From time to time he came out on the top of the limb nearest to us, and, with a wry face, fierce whiskers, and violent gestures, directed a torrent of abuse at the axemen who were delivering death-blows to Old Pine.

The old pine's enormous weight caused him to fall heavily, and he came to earth with tremendous force and struck on an elbow of one of his stocky arms. The force of the fall not only broke the trunk in two, but badly shattered it. The damage to the log was so general that the sawmill-man said it would not pay to saw it into lumber and that it could rot on the spot.

I had come a long distance for the express purpose of deciphering Old Pine's diary as the scroll of his life should be laid open in the sawmill. The abandonment of the shattered form compelled the adoption of another way of getting at his story. Receiving permission to do as I pleased with his remains, I at once began to cut and split both the trunk and the limbs and to transcribe their strange records. Day after day I worked. I dug up the roots and thoroughly dissected them, and with the aid of a magnifier I studied the trunk, the roots, and the limbs.

I carefully examined the base of his stump, and in it I found 1047 rings of growth! He had lived through a thousand and forty-seven memorable years. As he was cut down in 1903, his birth probably occurred in 856.

In looking over the rings of growth, I found that a few of them were much thicker than the others; and these thick rings, or coats of wood, tell of favorable seasons. There were also a few extremely thin rings of growth. In places two and even three of these were together. These were the result of unfavorable seasons, — of drought or cold. The rings of trees also show healed wounds, and tell of burns, bites, and bruises, of torn bark and broken arms. Old Pine not only received injuries in his early years, but from time to time throughout his life. The somewhat kinked condition of several of the rings of growth, beginning with the twentieth, shows that at the age of twenty he sustained an injury which resulted in a severe curvature of the spine, and that for some years he was somewhat stooped. I was unable to make out from his diary whether this injury was the result of a tree or some object falling upon him and pinning him down, or whether his back had been overweighted and bent by wet, clinging snow. As I could not find any scars or bruises, I think that snow must have been the cause of the injury. However, after a few years he straightened up with youthful vitality and seemed to outgrow and forget the experience.

A century of tranquil life followed, and during these years the rapid growth tells of good seasons as well as good soil. This rapid growth also shows that there could not have been any crowding neighbors to share the sun and the soil. The tree had grown evenly in all quarters, and the pith of the tree was in the centre. But had one tree grown close, on that quarter the old pine would have grown slower than the others and would have been thinner, and the pith would thus have been away from the tree's centre.

When the old pine was just completing his one hundred and thirty-fifth ring of growth, he met with an accident which I can account for only by assuming that a large tree that grew several yards away blew over, and in falling, stabbed him in the side with two dead limbs. His bark was broken and torn, but this healed in due time. Short sections of the dead limbs broke off, however, and were embedded in the old pine. Twelve years' growth covered them, and they remained hidden from view until my splitting revealed them. The other wounds started promptly to heal and, with one exception, did so.

A year or two later some ants and borers began excavating their deadly winding ways in the old pine. They probably started to work in one of the places injured by the falling tree. They must have had some advantage, or else something must have happened to the nuthatches and chickadees that year, for, despite the vigilance of these birds, both the borers and the ants succeeded in establishing colonies that threatened injury and possibly death.

Fortunately relief came. One day the chief surgeon of all the Southwestern pineries came along. This surgeon was the Texas woodpecker. He probably did not long explore the ridges and little furrows of the bark before he discovered the wound or heard these hidden insects working. After a brief examination, holding his ear to the bark for a moment to get the location of the tree's deadly foe beneath, he was ready to act.

He made two successful operations. These not only required him to cut deeply into the old pine and take out the borers, but he may also have had to come back from time to time to dress the wounds by devouring the ant-colonies which may have persisted in taking possession of them. The wounds finally healed, and only the splitting of the affected parts revealed these records, all filled with pitch and preserved for nearly nine hundred years.

Following this, an even tenor marked his life for nearly three centuries. This quiet existence came to an end in the summer of 1301, when a stroke of lightning tore a limb out of his round top and badly shattered a shoulder. He had barely recovered from this injury when a violent wind tore off several of his arms. During the summer of 1348 he lost two of his largest arms. These were large and sound, and were more than a foot in diameter at the points of breakage. As these were broken by a down-pressing weight or force, we may attribute these breaks to accumulations of snow.

The oldest, largest portion of a tree is the short section immediately above the ground, and, as this lower section is the most exposed to accidents or to injuries from enemies, it generally bears evidence of having suffered the most. Within its scroll are usually found the most extensive and interesting autobiographical impressions.

It is doubtful if there is any portion of the earth upon which there are so many deadly struggles as upon the earth around the trunk of a tree. Upon this small arena there are battles fierce and wild; here nature is "red in tooth and claw." When a tree is small and tender, countless insects come to feed upon it. Birds come to it to devour these insects. Around the tree are daily almost merciless fights for existence. These death-struggles occur not only in the daytime, but in the night. Mice, rats, and rabbits destroy millions of young trees. These bold animals often flay baby trees in the daylight, and while at their deadly feast many a time have they been surprised by hawks, and then they are at a banquet where they themselves are eaten. The owl, the faithful nightwatchman of trees, often swoops down at night, and as a result some little tree is splashed with the blood of the very animal that came to feed upon it.

The lower section of Old Pine's trunk contained records which I found interesting. One of these in particular aroused my imagination. I was sawing off a section of this lower portion when the saw, with a buzz-z-z-z, suddenly jumped. The object struck was harder than the saw. I wondered what it could be, and, cutting the wood carefully away, laid bare a flint arrowhead. Close to this one I found another, and then with care I counted the rings of growth to find out the year that these had wounded Old Pine. The outer ring which these arrowheads had pierced was the six hundred and thirtieth, so that the year of this occurrence was 1486.

Had an Indian bent his bow and shot at a bear that had stood at bay backed up against this tree? Or was there around this tree a battle among Indian tribes? Is it possible that at this place some Cliff-Dweller scouts encountered their advancing foe from the north and opened hostilities? It may be that around Old Pine was fought the battle that is said to have decided the fate of that mysterious race the Cliff-Dwellers. The imagination insists on speculating with these two arrowheads, though they form a fascinating clue that leads us to no definite conclusion. But the fact remains that Old Pine was wounded by two Indian arrowheads some time during his six hundred and thirtieth summer.

The year that Columbus discovered America, Old Pine was a handsome giant with a round head held more than one hundred feet above the earth. He was six hundred and thirty-six years old, and with the coming of the Spanish adventurers his lower trunk was given new events to record. The year 1540 was a particularly memorable one for him. This year brought the first horses and bearded men into the drama which was played around him. This year, for the first time, he felt the edge of steel and the tortures of fire. The old chronicles say that the Spanish explorers found the cliff-houses in the year 1540. I believe that during this year a Spanish exploring party may have camped beneath Old Pine and built a fire against his instep, and that some of the explorers hacked him with an axe. The old pine had distinct records of axe and fire markings during the year 1540. It was not common for the Indians of the West to burn or mutilate trees, and as it was common for the Spaniards to do so, and as these hackings in the tree seemed to have been made with some edged tool sharper than any possessed by the Indians, it at least seems probable that they were done by the Spaniards. At any rate, from the year 1540 until the day of his death, Old Pine carried these scars on his instep.

As the average yearly growth of the old pine was about the same as in trees similarly situated at the present time, I suppose that climatic conditions in his early days must have been similar to the climatic conditions of to-day. His records indicate periods of even tenor of climate, a year of extremely poor conditions, occasionally a year crowned with a bountiful wood harvest. From 1540 to 1762 I found little of special interest. In 1762, however, the season was not regular. After the ring was well started, something, perhaps a cold wave, for a time checked its growth, and as a result the wood for that one year resembled two years' growth, but yet the difference between this double or false ring and a regular one was easily detected. Old Pine's "hard times" experience seems to have been during the years 1804 and 1805. I think it probable that these were years of drought. During 1804 the layer of wood was the thinnest in his life, and for 1805 the only wood I could find was a layer which only partly covered the trunk of the tree, and this was exceedingly thin.

From time to time in the old pine's record, I came across what seemed to be indications of an earthquake shock; but late in 1811 or early in 1812, I think there is no doubt that he experienced a violent shock, for he made extensive records of it. This earthquake occurred after the sap had ceased to flow in 1811, and before it began to flow in the spring of 1812. In places the wood was checked and shattered. At one point, some distance from the ground, there was a bad horizontal break. Two big roots were broken in two, and that quarter of the tree which faced the cliffs had suffered from a rock bombardment. I suppose the violence of the quake displaced many rocks, and some of these, as they came bounding down the mountain-side, collided with Old Pine. One, of about five pounds' weight, struck him so violently in the side that it remained embedded there. After some years the wound was healed over, but this fragment remained in the tree until I released it.

During 1859 some one made an axe-mark on the old pine that may have been intended for a trail-blaze, and during the same year another fire badly burned and scarred his ankle. I wonder if some prospectors came this way in 1859 and made camp by him.

Another record of man's visits to the tree was made in the summer of 1881, when I think a hunting or outing party may have camped near here and amused themselves by shooting at a mark on Old Pine's ankle. Several modern rifle-bullets were found embedded in the wood around or just beneath a blaze which was made on the tree the same year in which the bullets had entered it. As both these marks were made during the year 1881, it is at least possible that this year the old pine was used as the background for a target during a shooting contest.

While I was working over the old pine, a Douglas squirrel who lived near by used every day to stop in his busy harvesting of pine-cones to look on and scold me. As I watched him placing his cones in a hole in the ground under the pine-needles, I often wondered if one of his buried cones would remain there uneaten to germinate and expand ever green into the air, and become a noble giant to live as long and as useful a life as Old Pine. I found myself trying to picture the scenes in which this tree would stand when the birds came singing back from the Southland in the springtime of the year 3000.

After I had finished my work of splitting, studying, and deciphering the fragments of the old pine, I went to the sawmill and arranged for the men to come over that evening after I had departed and burn every piece and vestige of the venerable old tree. I told them I should be gone by dark. Then I went back and piled into a pyramid every fragment of root and trunk and broken branch. Seating myself upon this pyramid, I spent some time that afternoon gazing through the autumn sunglow at the hazy Mesa Verde, while my mind rebuilt and shifted the scenes of the long, long drama in which Old Pine had played his part, and of which he had given us but a few fragmentary records. I lingered there dreaming until twilight. I thought of the cycles during which he had stood patient in his appointed place, and my imagination busied itself with the countless experiences that had been recorded, and the scenes and pageants he had witnessed but of which he had made no record. I wondered if he had enjoyed the changing of seasons. I knew that he had often boomed or hymned in the storm or in the breeze. Many a monumental robe of snow-flowers had he worn. More than a thousand times he had beheld the earth burst into bloom amid the happy songs of mating birds; hundreds of times in summer he had worn countless crystal rain-jewels in the sunlight of the breaking storm, while the brilliant rainbow came and vanished on the near-by mountain-side. Ten thousand times he had stood silent in the lonely light of the white and mystic moon.

Twilight was fading into darkness when I arose and started on a night-journey for the Mesa Verde, where I intended next morning to greet an old gnarled cedar which grew on its summit. When I arrived at the top of the Mesa, I looked back and saw a pyramid of golden flame standing out in the darkness.

The Beaver and his Works

The Beaver and His Works

I HAVE never been able to decide which I love best, birds or trees, but as these are really comrades it does not matter, for they can take first place together. But when it comes to second place in my affection for wild things, this, I am sure, is filled by the beaver. The beaver has so many interesting ways, and is altogether so useful, so thrifty, so busy, so skillful, and so picturesque, that I believe his life and his deeds deserve a larger place in literature and a better place in our hearts. His engineering works are of great value to man. They not only help to distribute the waters and beneficially control the flow of the streams, but they also catch and save from loss enormous quantities of the earth's best plant-food. In helping to do these two things, — governing the rivers and fixing the soil, — he plays an important part, and if he and the forest had their way with the water-supply, floods would be prevented, streams would never run dry, and a comparatively even flow of water would be maintained in the rivers every day of the year.

A number of beaver establishing a colony made one of the most interesting exhibitions of constructive work that I have ever watched. The work went on for several weeks, and I spent hours and days in observing operations. My hiding-place on a granite crag allowed me a good view of the work, — the cutting and transportation of the little logs, the dam-building, and the house-raising. I was close to the trees that were felled. Occasionally, during the construction work of this colony, I saw several beaver at one time cutting trees near one another. Upon one occasion, one was squatted on a fallen tree, another on the limb of a live one, and a third upon a boulder, each busy cutting down his tree. In every case, the tail was used for a combination stool and brace. While cutting, the beaver sat upright and clasped the willow with fore paws or put his hands against the tree, usually tilting his head to one side. The average diameter of the trees cut was about four inches, and a tree of this size was cut down quickly and without a pause.

When the tree was almost cut off, the cutter usually thumped with his tail, at which signal all other cutters near by scampered away. But this warning signal was not always given, and in one instance an unwarned cutter had a narrow escape from a tree falling perilously close to him.

Before cutting a tree, a beaver usually paused and appeared to look at its surroundings as if choosing a place to squat or sit while cutting it down; but so far as I could tell, he gave no thought as to the direction in which the tree was going to fall. This is true of every beaver which I have seen begin cutting, and I have seen scores. But beavers have individuality, and occasionally I noticed one with marked skill or decision. It may be, therefore, that some beaver try to fell trees on a particular place. In fact, I remember having seen in two localities stumps which suggested that the beaver who cut down the trees had planned just how they were to fall. In the first locality, I could judge only from the record left by the stumps; but the quarter on which the main notch had been made, together with the fact that the notch had in two instances been made on a quarter of the tree where it was inconvenient for the cutter to work, seemed to indicate a plan to fell the tree in a particular direction. In the other locality, I knew the attitude of the trees before they were cut, and in this instance the evidence was so complete and conclusive that I must believe the beaver that cut down these trees endeavored to get them to fall in a definite direction. In each of these cases, however, judging chiefly from the teeth-marks, I think the cuttings were done by the same beaver. Many observations induce me to believe, however, that the majority of beaver do not plan how the trees are to fall.

Once a large tree is on the ground, the limbs are trimmed off and the trunk is cut into sections sufficiently small to be dragged, rolled, or pushed to the water, where transportation is easy.

The young beaver that I have seen cutting trees have worked in leisurely manner, in contrast with the work of the old ones. After giving a few bites, they usually stop to eat a piece of the bark, or to stare listlessly around for a time. As workers, young beaver appear at their best and liveliest when taking a limb from the hillside to the house in the pond. A young beaver will catch a limb by one end in his teeth, and, throwing it over his shoulder in the attitude of a puppy racing with a rope or a rag, make off to the pond. Once in the water, he throws up his head and swims to the house or the dam with the limb held trailing out over his back.

The typical beaver-house seen in the Rockies at the present time stands in the upper edge of the pond which the beaver-dam has made, near where the brook enters it. Its foundation is about eight feet across, and it stands from five to ten feet in height, a rude cone in form. Most houses are made of sticks and mud, and are apparently put up with little thought for the living-room, which is later dug or gnawed from the interior. The entrance to the house is below water-level, and commonly on the bottom of the lake. Late each autumn, the house is plastered on the outside with mud, and I am inclined to believe that this plaster is not so much to increase the warmth of the house as to give it, when the mud is frozen, a strong protective armor, an armor which will prevent the winter enemies of the beaver from breaking into the house.

Each autumn beaver pile up near by the house, a large brush-heap of green trunks and limbs, mostly of aspen, willow, cottonwood, or alder. This is their granary, and during the winter they feed upon the green bark, supplementing this with the roots of water-plants, which they drag from the bottom of the pond.

Along in May five baby beaver appear, and a little later these explore the pond and race, wrestle, and splash water in it as merrily as boys. Occasionally they sun themselves on a fallen log, or play together there, trying to push one another off into the water. Often they play in the canals that lead between ponds or from them, or on the "slides." Toward the close of summer, they have their lessons in cutting and dam-building.

A beaver appears awkward as he works on land. In use of arms and hands he reminds one of a monkey, while his clumsy and usually slow-moving body will often suggest the hippopotamus. By using head, hands, teeth, tail, and

A BEAVER-HOUSE

Supply of winter food piled on the right

webbed feet the beaver accomplishes much. The tail of a beaver is a useful and much-used appendage; it serves as a rudder, a stool, and a ramming or signal club. The beaver *may* use his tail for a trowel, but I have never seen him so use it. His four front teeth are excellent edge-tools for his logging and woodwork; his webbed feet are most useful in his deep-waterway transportation, and his hands in house-building and especially in dam-building. It is in dam-building that the beaver shows his greatest skill and his best headwork; for I confess to the belief that a beaver reasons. I have so often seen him change his plans so wisely and meet emergencies so promptly and well that I can think of him only as a reasoner.

I have often wondered if beaver make a preliminary survey of a place before beginning to build a dam. I have seen them prowling suggestively along brooks just prior to beaver-dam building operations there, and circumstantial evidence would credit them with making preliminary surveys. But of this there is no proof. I have noticed a few things that seem to have been considered by beaver before beginning dam-building, — the supply of food and of dam-building material, for instance, and the location of the dam so as to require the minimum amount of material and insure the creation of the largest reservoir. In making the dam, the beaver usually takes advantage of boulders, willow-clumps, and surface irregularities. But he often makes errors of judgment. I have seen him abandon dams both before and after completion. The apparent reasons were that the dam either had failed or would fail to flood the area which he needed or desired flooded. His endeavors are not always successful. About twenty years ago, near Helena, Montana, a number of beaver made an audacious attempt to dam the Missouri River. After long and persistent effort, however, they gave it up. The beaver may be credited with errors, failures, and successes. He has forethought. If a colony of beaver be turned loose upon a three-mile tree-lined brook in the wilds and left undisturbed for a season, or until they have had time to select a site and locate themselves to best advantage, it is probable that the location chosen will indicate that they have examined the entire brook and then selected the best place.

As soon as the beaver's brush dam is completed, it begins to accumulate trash and mud. In a little while, usually, it is covered with a mass of soil, shrubs of willow begin to grow upon it, and after a few years it is a strong, earthy, willow-covered dam. The dams vary in length from a few feet to several hundred feet. I measured one on the South Platte River that was eleven hundred feet long.

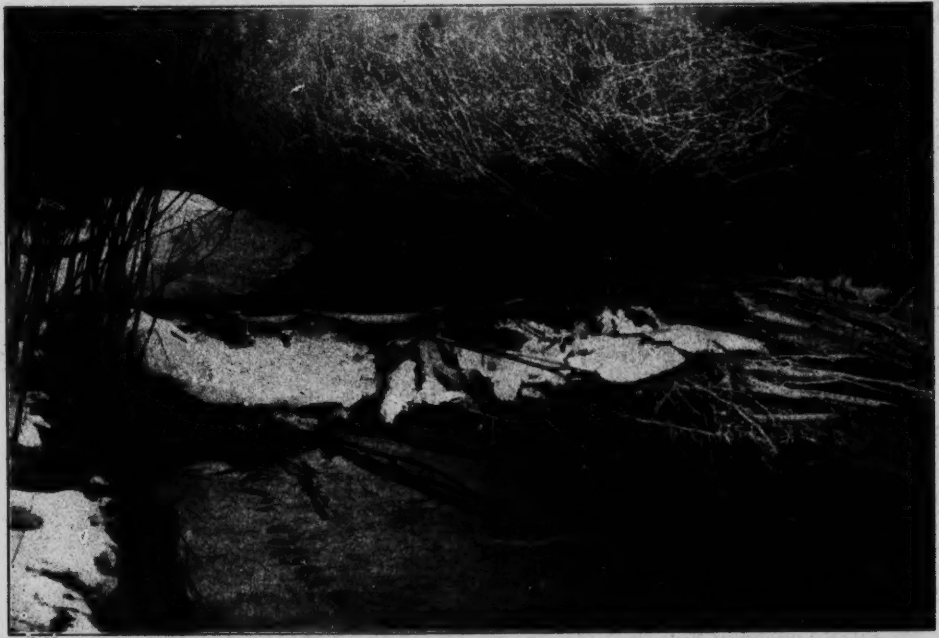
The influence of a beaver-dam is astounding. As soon as completed, it becomes a highway for the folk of the wild. It is used day and night. Mice and porcupines, bears and rabbits, lions and wolves, make a bridge of it. From it, in the evening, the graceful deer cast their reflections in the quiet pond. Over it dash pursuer and pursued; and on it take place battles and courtships. It is often torn by hoof and claw of animals locked in death-struggles, and often, very often, it is stained with blood. Many a drama, picturesque, fierce, and wild, is staged upon a beaver-dam.

An interesting and valuable book could be written concerning the earth as modified and benefited by beaver action, and I have long thought that the beaver deserved at least a chapter in Marsh's masterly book, "The Earth as modified by Human Action." To "work like a beaver" is an almost universal expression for energetic persistence, but who realizes that the beaver has accomplished anything? Almost unread of and unknown are his monumental works.

The instant a beaver-dam is completed, it has a decided influence on the flow of the water, and especially on the quantity of sediment which the passing water carries. The sediment, instead of going down to fill the channel below, or to clog the river's mouth, fill the harbor, and do damage a thousand miles away, is accumulated in the pond behind the dam, and a level deposit is formed over the entire area of the lake. By and by this deposit is so great that the lake is filled with sediment, but before this happens, both lake and dam check and delay so much flood-water that floods are diminished in volume, and the water thus delayed is in part added to the flow of the streams at the time of low water, the result being a more even stream-flow at all times.

The regulation of stream-flow is important. There are only a few rainy days each year, and all the water that flows down the rivers falls on these few rainy days. The instant the water reaches the earth, it is hurried away toward the sea, and unless some agency delays the run-off, the rivers would naturally contain water only on the rainy days and a little while after. The fact that some rivers contain water at all times is but evidence that something has held in check a portion of the water which fell during these rainy days.

Among the agencies which best perform this service of keeping the streams ever-flowing, are the forests and the works of the beaver. Rainfall accumulates in the brooks. The brooks conduct the water to the rivers. If across a river there be a beaver-dam, the pond formed by it will be a reservoir which will catch and retain some of the water coming into it during rainy days, and will thus delay the passage of all water which flows through it. Beaver-reservoirs are leaky ones, and if they are stored full during rainy days, the leaking helps to maintain the stream-flow in dry weather. A beaver-dam thus tends to distribute to the streams below it a moderate quantity of water each day. In other words, it spreads out or distributes the water of the few rainy days through all the days of the year. A river which flows steadily throughout the year is of inestimable value to mankind. If floods sweep a river, they do damage. If low water comes, the wheels of steamers and of manufactories cease to move, and damage or death may result. In maintaining a medium between the extremes of high and low water, the beaver's work is of profound importance. In helping beneficially to control a river, the beaver would render enormous service if allowed to construct his works at its source. During times of heavy rainfall, the water-flow carries with it, especially in unforested sections, great quantities of soil and sediment. Beaver-dams catch much of the material eroded from the hillsides above, and also prevent much erosion along the streams which they govern. They thus catch and deposit in place much valuable soil, the cream



A BEAVER-DAM IN WINTER

of the earth, that otherwise would be washed away and lost,—washed away into the rivers and harbors, impeding navigation and increasing river and harbor bills.

There is an old Indian legend which says that after the Creator separated the land from the water he employed gigantic beavers to smooth it down and prepare it for the abode of man. This is appreciative and suggestive. Beaver-dams have had much to do with the shaping and creating of a great deal of the richest agricultural land in America. To-day there are many peaceful and productive valleys the soil of which has been accumulated and fixed in place by ages of engineering activities on the part of the beaver before the white man came. On both mountain and plain you may still see much of this good work accomplished by them. In the mountains, deep and almost useless gulches have been filled by beaver-dams with sediment, and in course of time changed to meadows. So far as I know, the upper course of every river in the Rockies is through a number of beaver-meadows, some of them acres in extent.

On the upper course of Grand River in Colorado, I once made an extensive examination of some old beaver-works. Series of beaver-dams had been extended along this stream for several miles, as many as twenty dams to the mile. Each succeeding dam had backed water to the one above it. These had accumulated soil and formed a series of terraces, which, with the moderate slope of the valley, had in time formed an extensive and comparatively level meadow for a great distance along the river. The beaver settlement on this river was long ago almost entirely destroyed, and the year before my arrival a cloudburst had fallen upon the mountain-slope above, and the down-rushing flood had, in places, eroded deeply into the deposits formed by the beaver-works. At one place the water had cut down twenty-two feet, and had brought to light the fact that the deposit had been formed by a series of dams one above the other, a new dam having been built or the old one increased in height when the deposit of sediment had filled, or nearly filled, the pond. This is only one instance. There are thousands of similar places in the Rockies where beaver-dams have accumulated deposits of greater or less extent than those on the Grand River.

Only a few beaver remain, and though much of their work will endure to serve mankind, in many places their old work is gone or is going to ruin for the want of attention. We are paying dearly for the thoughtless and almost complete destruction of this animal. A live beaver is far more valuable to us than a dead one. Soil is eroding away, river-channels are filling, and most of the streams in the United States fluctuate between flood and low water. A beaver colony at the source of every stream would moderate these extremes and add to the picturesqueness and beauty of many scenes that are now growing ugly with erosion. We need to coöperate with the beaver. He would assist the work of reclamation, and be of great service in maintaining the deep-waterways. I trust he will be assisted in colonizing our National Forests, and allowed to cut timber there without a permit.

The beaver is the Abou-ben-Adhem of the wild. May his tribe increase.

The Wilds without Firearms

The Wilds without Firearms

HAD I encountered the two gray wolves during my first unarmed camping-trip into the wilds, the experience would hardly have suggested to me that going without firearms is the best way to enjoy wild nature. But I had made many unarmed excursions beyond the trail before I had that adventure, and the habit of going without a gun was so firmly fixed and so satisfactory that even a perilous wolf encounter did not arouse any desire for firearms. The habit continued, and to-day the only way I can enjoy the wilds is to leave guns behind.

On that autumn afternoon I was walking along slowly, reflectively, in a deep forest. Not a breath of air moved, and even the aspen's golden leaves stood still in the sunlight. All was calm and peaceful around and within me, when I came to a little sunny frost-tanned grass-plot surrounded by tall, crowding pines. I felt drawn to its warmth and repose and stepped joyfully into it. Suddenly two gray wolves sprang from almost beneath my feet and faced me defiantly. At a few feet distance they made an impressive show of ferocity, standing ready apparently to hurl themselves upon me.

Now the gray wolf is a powerful, savage beast, and directing his strong jaws, tireless muscles, keen scent, and all-seeing eyes are exceedingly nimble wits. He is well equipped to make the severe struggle for existence which his present environment compels. In many Western localities, despite the high price offered for his scalp, he has managed not only to live, but to increase and multiply. I had seen gray wolves pull down big game. On one occasion I had seen a vigorous long-horned steer fall after a desperate struggle with two of these fearfully fanged animals. Many times I had come across scattered bones which told of their triumph; and altogether I was so impressed with their deadliness that a glimpse of one of them usually gave me over to a temporary dread.

The two wolves facing me seemed to have been asleep in the sun when I disturbed them. I realized the danger and was alarmed, of course, but my faculties were under control, were stimulated, indeed, to unusual alertness, and I kept a bold front and faced them without flinching. Their expression was one of mingled surprise and anger, together with the apparent determination to sell their lives as dearly as possible. I gave them all the attention which their appearance and their reputation demanded. Not once did I take my eyes off them. I held them at bay with my eyes. I still have a vivid picture of terribly gleaming teeth, bristling backs, and bulging muscles in savage readiness.

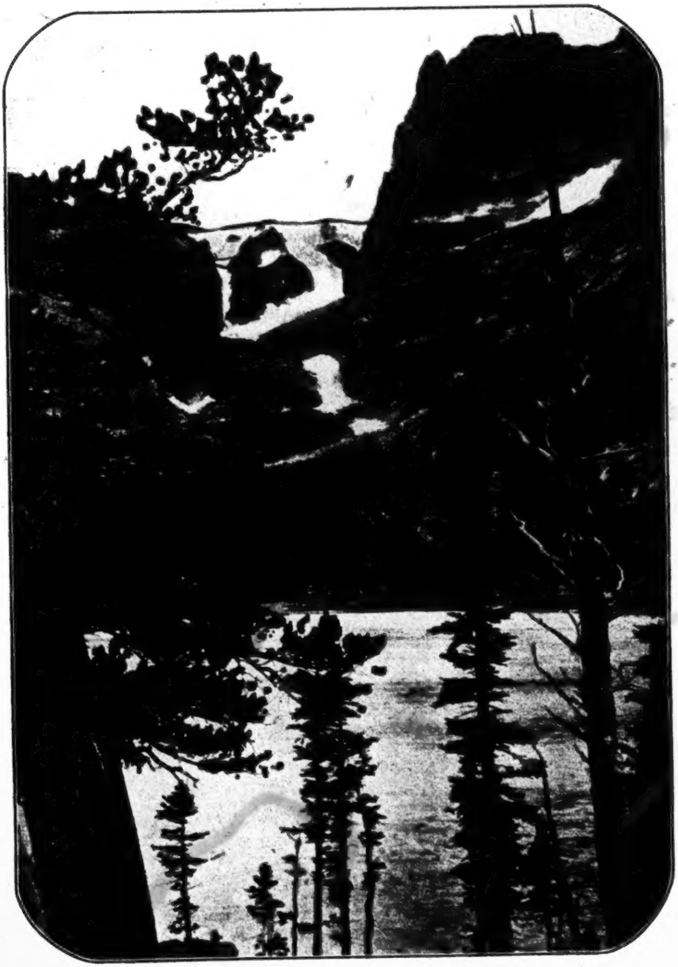
They made no move to attack. I was afraid to attack and I dared not run away. I remembered that some trees I could almost reach behind me had limbs that stretched out toward me, yet I felt that to wheel, spring for a limb, and swing up beyond their reach could not be done quickly enough to escape those fierce jaws.

Both sides were of the same mind, ready to fight, but not at all eager to do so. Under these conditions our nearness was embarrassing, and we faced each other for what seemed, to me at least, a long time. My mind working like lightning, I thought of several possible ways of escaping. I considered each at length, found it faulty, and dismissed it. Meanwhile, not a sound had been made. I had not moved, but something had to be done. Slowly I worked the small folding axe from its sheath, and with the slowest of movements placed it in my right coat-pocket with the handle up, ready for instant use. I did this with studied deliberation, lest a sudden movement should release the springs that held the wolves back. I kept on staring. Statues, almost, we must have appeared to the "camp-bird" whose call from a near-by limb told me we were observed, and whose nearness gave me courage. Then, looking the nearer of the two wolves squarely in the eye, I said to him, "Well, why don't you move?" as though we were playing checkers instead of the game of life. He made no reply, but the spell was broken. I believe that both sides had been bluffing. In attempting to use my kodak while continuing the bluff, I brought matters to a focus. "What a picture you fellows will make," I said aloud, as my right hand slowly worked the kodak out of the case which hung under my left arm. Still keeping up a steady fire of looks, I brought the kodak in front of me ready to focus, and then touched the spring that released the folding front. When the kodak mysteriously, suddenly opened before the wolves, they fled for their lives. In an instant they had cleared the grassy space and vanished into the woods. I did not get their picture.

With a gun, the wolf encounter could not have ended more happily. At any rate, I have not for a moment cared for a gun since I returned enthusiastic from my first delightful trip into the wilds without one. Out in the wilds with nature is one of the safest and most sanitary of places. Bears are not seeking to devour, and the death-list from lions, wolves, snakes, and all other bugbears combined does not equal the death-list from fire, automobiles, street-cars, or banquets. Being afraid of nature or a rainstorm is like being afraid of the dark.

The time of that first excursion was spent among scenes that I had visited before, but the discoveries I made and the deeper feelings it stirred within me, led me to think it more worth while than any previous trip among the same delightful scenes. The first day, especially, was excitingly crowded with new sights and sounds and fancies. I fear that during the earlier trips the rifle had obscured most of the scenes in which it could not figure, and as a result I missed fairyland and most of the sunsets.

When I arrived at the alpine lake by which I was to camp, evening's long rays and shadows were romantically robing the picturesque wild border of the lake. The crags, the temples, the flower-edged snowdrifts, and the grass-plots of this wild garden seemed half-unreal, as over them the long lights and torn shadows grouped and changed, lingered and vanished, in the last moments of the sun. The deep purple of evening was over all, and the ruined crag with the broken pine on the ridge-top was black against the evening's golden glow, when I hastened to make camp by a pine temple while the beautiful world of sunset's hour slowly faded into the night.



LAKE ODESSA

The camp-fire was a glory-burst in the darkness, and the small many-spired evergreen temple before me shone an illuminated cathedral in the night. All that evening I believed in fairies, and by watching the changing camp-fire kept my fancies frolicking in realms of mystery where all the world was young. I lay down without a gun, and while the fire changed and faded to black and gray the coyotes began to howl. But their voices did not seem as lonely or menacing as when I had had a rifle by my side. As I lay listening to them, I thought I detected merriment in their tones, and in a little while their shouts rang as merrily as though they were boys at play. Never before had I realized that coyotes too had enjoyments, and I listened to their shouts with pleasure. At last the illumination faded from the cathedral grove and its templed top stood in charcoal against the clear heavens as I fell asleep beneath the peaceful stars.

The next morning I loitered here and there, getting acquainted with the lake-shore, for without a gun all objects, or my eyes, were so changed that I had only a dim recollection of having seen the place before. From time to time, as I walked about, I stopped to try to win the confidence of the small folk in fur and feathers. I found some that trusted me, and at noon a chipmunk, a camp-bird, a chickadee, and myself were several times busy with the same bit of luncheon at once.

Some years ago mountain sheep often came in flocks to lick the salty soil in a ruined crater on Specimen Mountain. One day I climbed up and hid myself in the crags to watch them. More than a hundred of them came. After licking for a time, many lay down. Some of the rams posed themselves on the rocks in heroic attitudes and looked serenely and watchfully around. Young lambs ran about, and a few occasionally raced up and down smooth, rocky steeps, seemingly without the slightest regard for the laws of falling bodies. I was close to the flock, but luckily they did not suspect my presence. After enjoying their fine wild play for more than two hours, I slipped away and left them in their home among the crags.

One spring day I paused in a whirl of mist and wet snow to look for the trail. I could see only a few yards ahead. As I peered ahead, a bear emerged from the gloom, heading straight for me. Behind her were two cubs. I caught her impatient expression when she beheld me. She stopped, and then, with a growl of anger, she wheeled and boxed cubs right and left like an angry mother. The bears disappeared in the direction from which they had come, the cubs urged on with spanks from behind as all vanished in the falling snow.

The gray Douglas squirrel is one of the most active, audacious, and outspoken of animals. He enjoys seclusion and claims to be monarch of all he surveys, and no trespasser is too big to escape a scolding from him. Many times he has given me a terrible tongue-lashing with a desperate accompaniment of fierce facial expressions, bristling whiskers, and emphatic gestures. I love this brave fellow creature; but if he were only a few inches bigger, I should never risk my life in his woods without a gun.

This is a beautiful world, and all who go out under the open sky will feel the gentle, kindly influence of Nature and hear her good tidings. The forests of the earth are the flags of Nature. They appeal to all and awaken inspiring universal feelings. Enter the forest and the boundaries of nations are forgotten. It may be that some time an immortal pine will be the flag of a united and peaceful world.

A Watcher on the Heights

A Watcher on the Heights

WHILE on the sky-line as State Snow Observer, I had one adventure with the elements that called for the longest special report that I have ever written. Perhaps I cannot do better than quote this report transmitted to Professor Carpenter, at Denver, on May 26, 1904.

NOTES ON THE POUDRE FLOOD

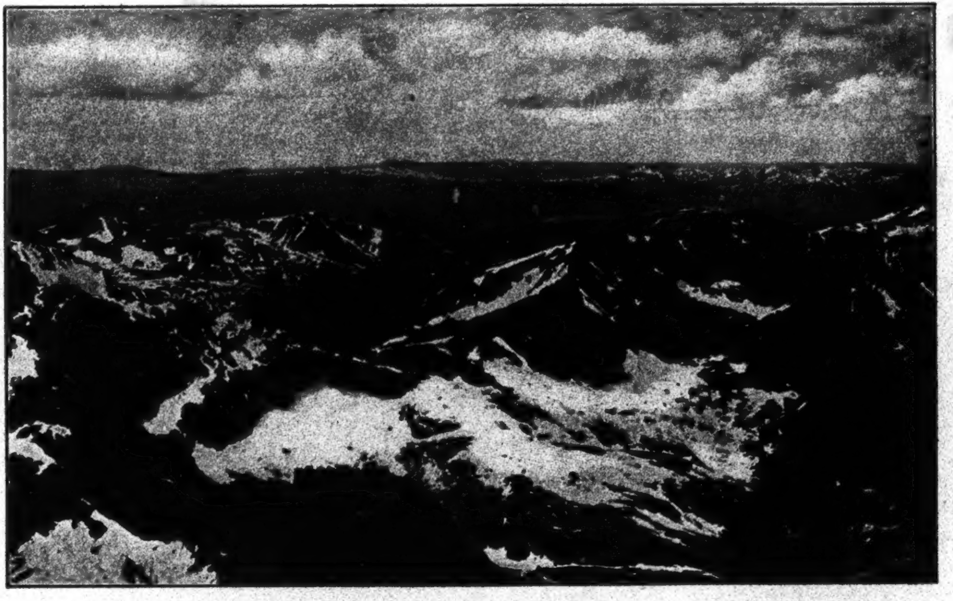
The day before the Poudre flood, I traveled for eight hours northwesterly along the top of the Continental Divide, all the time being above timber-line and from eleven thousand to twelve thousand feet above sea-level.

The morning was cloudless and hot. The western sky was marvelously clear. Eastward, a thin, dark haze overspread everything below ten thousand feet. By 9.30 A. M. this haze had ascended higher than where I was. At nine o'clock the snow on which I walked, though it had been frozen hard during the night, was soggy and wet.

About 9.30 a calm that had prevailed all the morning gave way before an easy intermittent warm breeze from the southeast.

At 10.10 the first cloud appeared in the north, just above Hague's Peak. It was a heavy cumulus cloud, but I do not know from what direction it came. It rose high in the air, drifted slowly toward the west, and then seemed to dissolve. At any rate, it vanished. About 10.30 several heavy clouds rose from behind Long's Peak, moving toward the northwest, rising higher into the sky as they advanced.

The wind, at first in fitful dashes from the southeast, began to come more steadily and swiftly after eleven o'clock, and was so warm that the snow softened to a sloppy state. The air carried a tinge of haze, and conditions were oppressive. It was labor to breathe. Never, except one deadly hot July day in New York City, have I felt so overcome with heat and choking air. Perspiration simply streamed from me. These oppressive conditions continued for two hours,—



ON THE HEIGHTS

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until about one o'clock. While they lasted, my eyes pained, ached, and twitched. There was no glare, but only by keeping my eyes closed could I stand the half-burning pain. Finally I came to some crags and lay down for a time in the shade. I was up eleven thousand five hundred feet and the time was 12.20. As I lay on the snow gazing upward, I became aware that there were several flotillas of clouds of from seven to twenty each, and these were moving toward every point of the compass. Each seemed on a different stratum of air, and each moved through space a considerable distance above or below the others. The clouds moving eastward were the highest. Most of the lower clouds were those moving westward. The haze and sunlight gave color to every cloud, and this color varied from smoky red to orange.

At two o'clock the haze came in from the east almost as dense as a fog-bank, crossed the ridge before me, and spread out as dark and foreboding as the smoke of Vesuvius. Behind me the haze rolled upward when it struck the ridge, and I had clear glimpses whenever I looked to the southwest. This heavy, muddy haze prevailed for a little more than half an hour, and as it cleared, the clouds began to disappear, but a gauzy haze still continued in the air. The feeling in the air was not agreeable, and for the first time in my life I felt alarmed by the shifting, rioting clouds and the weird haze.

I arrived at timber-line south of Poudre Lakes about 4.30 P. M., and for more than half an hour the sky, except in the east over the foothills, was clear, and the sunlight struck a glare from the snow. With the cleared air there came to me an easier feeling. The oppressiveness ceased. I descended a short distance into the woods and relaxed on a fallen tree that lay above the snow.

I had been there but a little while, when — snap! buzz! buzz! buzz! ziz! ziz! and electricity began to pull my hair and hum around my ears. The electricity passed off shortly, but in a little while it caught me again by the hair for a brief time, and this time my right arm momentarily cramped and my heart seemed to give several lurches. I arose and tramped on and downward, but every little while I was in for shocking treatment. The electrical waves came from the southwest and moved northeast. They were separated by periods of from one to several minutes in length, and were about two seconds in passing. During their presence they made it lively for me, with hair-pulling, heart-palpitation, and muscular cramps. I tried moving speedily with the wave, also standing still and lying down, hoping that the wave would pass me by; but in each and every case it gave me the same stirring treatment. Once I stood erect and rigid as the wave came on, but it intensified suddenly the rigidity of every muscle to a seemingly rupturing extent, and I did not try that plan again. The effect of each wave on me seemed to be slightly weakened whenever I lay down and fully relaxed my muscles.

I was on a northerly slope, in spruce timber, tramping over five feet of snow. During these electrical waves, the points of dry twigs were tipped with a smoky blue flame, and sometimes bands of this bluish flame encircled green trees just below their lower limbs. I looked at the compass a few times, and though the needle occasionally swayed a little, it was not affected in any marked manner.

The effect of the electrical waves on me became less as I descended, but whether from my getting below the electrical stratum, or from a cessation of the current, I cannot say.

But I did not descend much below eleven thousand feet, and at the lowest point I crossed the South Poudre, at the outlet of Poudre Lakes. In crossing I broke through the ice and received a wetting, with the exception of my right side above the hip. Once across, I walked about two hundred yards through an opening, then again entered the woods, on the southeasterly slope of Specimen Mountain. I had climbed only a short distance up this slope when another electrical wave struck me. The effect of this was similar to that of the preceding ones. There was, however, a marked difference in the intensity with which the electricity affected the wet and the dry portions of my body. The effect on my right side and shoulder, which had escaped wetting when I broke through the ice, was noticeably stronger than on the rest of my body. Climbing soon dried my clothes sufficiently to make this difference no longer noticeable. The waves became more frequent than at first, but not so strong. I made a clumsy climb of about five hundred feet, my muscles being "muscle-bound" all the time with rigidity from electricity. But this climb brought me almost to timber-line on Specimen Mountain, and also under the shadow of the south peak of it. At this place the electrical effects almost ceased. Nor did I again seriously feel the current until I found myself out in the sunlight which came between the two peaks of Specimen. While I continued in the sunlight I felt the electrical wave, but, strange to say, when I again entered the shadow I almost wholly escaped it.

When I started on the last slope toward the top of North Specimen, I came out into the sunlight again, and I also passed into an electrical sea. The slope was free from snow, and as the electrical waves swept in close succession, about thirty seconds apart, they snapped, hummed, and buzzed in such a manner that their advance and retreat could be plainly heard. In passing by me, the noise was more of a crackling and humming nature, while a million faint sparks flashed from the stones (porphyry and rhyolite) as the wave passed over. But the effect on me became constant. Every muscle was almost immovable. I could climb only a few steps without weakening to the stopping-point. I breathed only by gasps, and my heart became violent and feeble by turns. I felt as if cinched in a steel corset. After I had spent ten long minutes and was only half-way up a slope, the entire length of which I had more than once climbed in a few minutes and in fine shape, I turned to retreat, but as there was no cessation of the electrical colic, I faced about and started up again. I reached the top a few minutes before 6.30 P. M., and shortly afterward the sun disappeared behind clouds and peaks.

I regret that I failed to notice whether the electrical effects ceased with the setting of the sun, but it was not long after the disappearance of the sun before I was at ease, enjoying the magnificent mountain-range of clouds that had formed above the foothills and stood up glorious in the sunlight.

Shortly before five o'clock the clouds had begun to pile up in the east, and their gigantic forms, flowing outlines, and glorious lighting were the only things that caused the electrical effects to be forgotten even momentarily. The clouds formed into a long, solid, rounded range that rose to great height and was miles in length. The southern end of this range was in the haze, and I could not make out its outline further south than a point about opposite Loveland, Colorado, nor could I see the northern end beyond a few miles north of Cheyenne, where it was cut off by a dozen strata of low clouds that moved steadily at a right angle to the east. Sixty miles of length was visible. Its height, like that of the real mountains which it paralleled, diminished toward the north. The place of greatest altitude was about twenty-five miles distant from me. From my location, the clouds presented a long and smoothly terraced slope, the top of which was at least five thousand feet and may have been fifteen thousand feet above me. The clouds seemed compact; at times they surged upwards; then they would settle with a long, undulating swell, as if some unseen power were trying to force them further up the mountains, while they were afraid to try it. Finally a series of low, conical peaks rose on the summit of the cloud-range, and the peaks and the upper cloud-slope resembled the upper portion of a circus-tent. There were no rough places or angles.

When darkness came on, the surface of this cloud-range was at times splendidly illuminated by electricity beneath; and, when the darkness deepened, the electrical play beneath often caused the surface to shine momentarily like incandescent glass, and occasionally sinuous rivers of gold ran over the slopes. Several times I thought that the course of these golden rivers of electrical fire was from the bottom upward, but so brilliant and dazzling were they that I could not positively decide on the direction of their movement. Never have I seen such enormous cloud-forms or such brilliant electrical effects.

The summit of Specimen Mountain, from which I watched the clouds and electrical flashes, is about twelve thousand five hundred feet above sea-level. A calm prevailed while I remained on top. It was about 8.30 P. M. when I left the summit, on snowshoes, and swept down the steep northern slope into the woods. This hurry caused no unusual heart or muscle action.

The next morning was cloudy as low down as ten thousand five hundred feet, and, for all I know, lower still. The night had been warm, and the morning had the oppressive feeling that dominated the morning before. The clouds broke up before nine o'clock, and the air, with haze in it, seemed yellow. About 10.30, haze and, soon after, clouds came in from the southeast (at this time I was high up on the southerly slope of Mt. Richthofen), and by eleven o'clock the sky was cloudy. Up to this time the air, when my snowglasses were off, burned and twitched my eyes in the same manner as on the previous morning.

Early in the afternoon I left Grand Ditch Camp and started down to Chambers Lake. I had not gone far when drops of rain began to fall from time to time, and shortly after this my muscles began to twitch occasionally under electrical ticklings. At times slight muscular rigidity was noticeable. Just before two o'clock the clouds began to burst through between the trees. I was at an altitude of about eleven thousand feet and a short distance from the head of Trap Creek. Rain, hail, and snow fell in turn, and the lightning began frequently to strike the rocks. With the beginning of the lightning my muscles ceased to be troubled with either twitching or rigidity. For the two hours between 2 and 4 P. M. the crash and roll of thunder was incessant. I counted twenty-three times that the lightning struck the rocks, but I did not see it strike a tree. The clouds were low, and the wind came from the east and the northeast, then from the west.

About four o'clock, I broke through the snow, tumbled into Trap Creek, and had to swim a little. This stream was really very swift, and ran in a narrow gulch, but it was blocked by snow and by tree-limbs swept down by the flood, and a pond had been formed. It was crowded with a deep deposit of snow which rested on a shelf of ice. This covering was shattered and uplifted by the swollen stream, and I had slipped on the top of the gulch and tumbled in. Once in, the swift water tugged at me to pull me under; the cakes

A STORM ON THE ROCKIES

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of snow and ice hampered me, and my snowshoes were entangled with brush and limbs. The combination seemed determined to drown me. For a few seconds I put forth all my efforts to get at my pocket-knife. This accomplished, the fastenings of my snowshoes were cut, and unhampered by these, I escaped the waters.

Since I have felt no ill results, the effect of the entire experience may have been beneficial. The clouds, glorious as they had been in formation and coloring, resulted in a terrible cloudburst. Enormous quantities of water were poured out, and this, falling upon the treeless foothills, rushed away to do more than a million dollars' damage in the rich and beautiful Poudre Valley.

Climbing Long's Peak

Climbing Long's Peak

AMONG the best days that I have had outdoors are the two hundred and fifty-seven that were spent as a guide on Long's Peak. One day was required from the starting-place near my cabin for each round trip to the summit of the peak. Something of interest occurred to enliven each one of these climbs: a storm, an accident, the wit of some one or the enthusiasm of all the climbers. But the climb I remember with greatest satisfaction is the one on which I guided Harriet Peters, an eight-year-old girl, to the top.

It was a cold morning when we started for the top, but it was this day or wait until next season, for Harriet was to start for her Southern home in a day or two and could not wait for a more favorable morning. Harriet had spent the two preceding summers near my cabin, and around it had played with the chipmunks and ridden the burros, and she had made a few climbs with me

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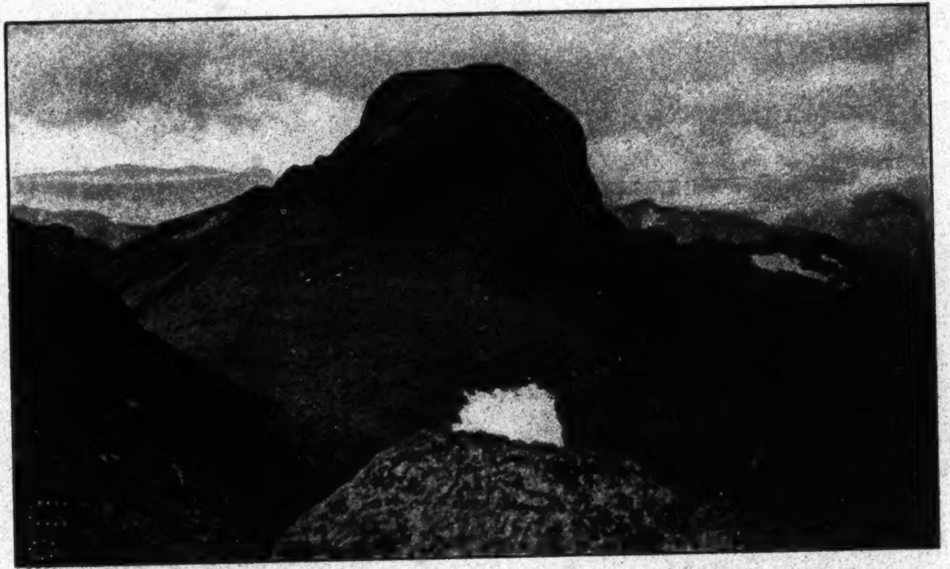
up through the woods. We often talked of going to the top of Long's Peak when she should become strong enough to do so. This time came just after her eighth birthday. As I was as eager to have her make the climb as she was to make it, we started up the next morning after her aunt had given permission for her to go. She was happy when I lifted her at last into the saddle, away up on old "Top's" back. She was so small that I still wonder how she managed to stay on, but she did so easily.

Long's Peak is not only one of the most scenic of the peaks in the Rocky Mountains, but it is probably the most rugged. From our starting-place it was seven miles to the top; five of these miles may be ridden, but the last two are so steep and craggy that one must go on foot and climb.

After riding a little more than a mile, we came to a clear, cold brook that is ever coming down in a great hurry over a steep mountain-side, splashing, jumping, and falling over the boulders of one of nature's stony stairways and forming white cascades which throw their spray among the tall, dark pines. I had told Harriet that ouzels



LONG'S PEAK FROM THE SUMMIT OF MT. MEEKER

lived by this brook; she was eager to see one, and we stopped at a promising place by the brook to watch. In less than a minute one came flying down the cascades, and so near to the surface of the water that he seemed to be tumbling and sliding down with it. He alighted on a boulder near us, made two or three pleasant curtsies, and started to sing one of his low, sweet songs. He was doing the very thing of which I had so often told Harriet. We watched and listened with breathless interest. In the midst of the song he dived into the brook; in a moment he came up with a water-bug in his bill, settled on the boulder again, gave his nods, and resumed his song, seemingly at the point where he left off. After a few low, sweet notes he broke off again and plunged into the water. This time he came up quickly and alighted on the spot he had just left, and went on with his song without any preliminaries and as if there had been no interruption.

The water-ouzel is found by the alpine lakes and brooks on the mountains of the West. It is a modest-appearing bird, about the size of a thrush, and wears a plain dress of slaty blue.

This dress is finished with a tail-piece somewhat like that of the wren, though it is not upturned so much. The bird seems to love cascades, and often nests by one. It also shows its fondness for water by often flying along the brook, following every bend and break made by the stream, keeping close to the water all the time and frequently touching it. Over the quiet reaches it goes skimming; it plunges over the waterfalls, alights on rocks in the rapids, goes dashing through the spray, its every movement showing the ecstasies of eager life and joy in the hurrying water. Our ouzel was quietly feeding on the edge of the brook, when Harriet said good-bye as our ponies started up the trail.

Harriet had never been in school, but she could read, write, and sing. She had good health, and a brighter, cheerier little girl I have never seen. As we rode up the trail through the woods, the gray Douglas squirrels were busy with the harvest. They were cutting off and storing cones for winter food. In the treetops these squirrels seemed to be bouncing and darting in all directions. One would cut off a cone, then dart to the next, and so swiftly that cones were constantly dropping. Frequently the cones struck limbs and bounded as they fell, often coming to the ground to bounce and roll some distance over the forest floor. An occasional one went rolling and bouncing down the steep mountain-side with two or three happy chipmunks in jolly pursuit.

We watched one squirrel stow cones under trash and in holes in the thick beds of needles. These cones were buried near a tree, in a dead limb of which the squirrel had a hole and a home. Harriet asked many questions concerning the cones, — why they were buried, how the squirrel found them when they were buried in the snow, and what became of those which were left buried. I told her that during the winter the squirrel came down and dug through the snow to the cones and then fed upon the nuts. I also told her that squirrels usually buried more cones than were eaten. The uneaten cones, being left in the ground, were in a way planted, and the nuts in them in time sprouted, and young trees came peeping up among the fallen leaves. The squirrel's way of observing Arbor Day makes him a useful forester. Harriet said she would tell all her boy and girl friends what she knew of this squirrel's tree-planting ways, and would ask her uncle not to shoot the little tree-planter.

As we followed the trail up through the woods, I told Harriet many things concerning the trees, and the forces which influenced their distribution and growth. While we were traveling westward in the bottom of a gulch, I pointed out to her that the trees on the mountain that rose on the right and sloped toward the south were of a different kind from those on the mountain-side which rose on our left and sloped toward the north. After traveling four miles and climbing up two thousand feet above our starting-place, and, after from time to time coming to and passing kinds of trees which did not grow lower down the slopes, we at last came to timber-line, above which trees did not grow at all.

In North America between timber-line on the Rockies, at an altitude of about eleven thousand feet, and sea-level on the Florida coast, there are about six hundred and twenty kinds of trees and shrubs growing. Each kind usually grows in the soil and clime that is best suited to its requirements; in other words, most trees are growing where they can do the best, or where they can do better than any other kind. Some trees do the best at the moist seashore; some thrive in swamps; others live only on the desert's edge; some live on the edge of a river; and still others manage to endure the storms of bleak heights.

At timber-line the trees have a hard time of it. All of them at this place are dwarfed, many distorted, some crushed to the earth, flattened out upon the ground like pressed flowers, by the snowdrifts that have so long lain upon them. The winter winds at this place blow almost constantly from the same quarter for days at a time, and often attain a high velocity. The effect of these winds is strikingly shown by the trees. None of the trees are tall, and most of them are leaning, pushed partly over by the wind. Some are sprawled on the ground like uncouth vines or spread out from the stump like a fan with the onsweeping direction of the storms. Most of the standing, unsheltered trees have limbs only on the leeward quarter, all the other limbs having been blown off by the wind or cut off by the wind-blown gravel. Most of the exposed trees are destitute of bark on the portion of the trunk that faces these winter winds. Some of the dead standing trees are carved into strange totem-poles by the sand-blasts of many fierce storms. With all the trees warped or distorted, the effect of timber-line is weird and strange.

Harriet and I got off the ponies the better to examine some of the storm-beaten trees. Harriet was attracted to a few dwarf spruces that were standing in a drift of recently fallen snow. Although these dwarfed little trees were more than a hundred years old, they were so short that the little mountain-climber who stood by them was taller than they. After stroking one of the trees with her hand, Harriet stood for a time in silence, then out of her warm childish nature she said, "What brave little trees to live up here where they have to stand all the time in the snow!" Timber-line, with its strange tree statuary and treeless snowy peaks and crags rising above it, together with its many kinds of bird and animal life and its flower-fringed snowdrifts, is one of nature's most expressive exhibits, and I wish every one might visit it. At an altitude of about eleven thousand seven hundred feet we came to the last tree. It was ragged, and so small that you could have hidden it beneath a hat. It nestled up to a boulder, and appeared so cold and pitiful that Harriet wanted to know if it was lost. It certainly appeared as if it had been lost for a long, long time.

Among the crags Harriet and I kept sharp watch for mountain sheep, but we did not see any. We were fortunate enough, however, to see a flock of ptarmigan. These birds were huddled in a hole which narrowly escaped being trampled on by Top. They walked quietly away, and we had a good look at them. They were almost white; in winter they are pure white, while in summer they are of a grayish brown. At all times their dress matches the surroundings fairly well, so that they have a protective coloring which makes it difficult for their enemies to see them.

At an altitude of twelve thousand five hundred feet the horses were tied to boulders and left behind. From this place to the top of the peak the way is too rough or precipitous for horses. For a mile Harriet and I went forward over the boulders of an old moraine. The last half-mile was the most difficult of all; the way was steep and broken, and was entirely over rocks, which were covered with a few inches of snow that had fallen during the night.

We climbed slowly; all good climbers go slowly. Harriet also faithfully followed another good mountain rule, —"Look before you step." She did not fall, slip, or stumble while making the climb. Of course we occasionally rested, and whenever we stopped near a flat rock or a level place, we made use of it by lying down on our backs, straightening out arms and legs, relaxing every muscle, and for a time resting as loosely as possible. Just before reaching the top, we made a long climb through the deepest snow that we had encountered. Though the sun was warm, the air, rocks, and snow were cold. Not only was the snow cold to the feet, but climbing through it was tiresome, and at the first convenient place we stopped to rest. Finding a large, smooth rock, we lay down on our backs side by side. We talked for a time and watched an eagle soaring around up in the blue sky. I think Harriet must have recalled a suggestion which I made at timber-line, for without moving she suddenly remarked, "Mr. Mills, my feet are so cold that I can't tell whether my toes are wiggling or not."

Five hours after starting, Harriet stepped upon the top, the youngest climber to scale Long's Peak. The top is fourteen thousand two hundred and fifty-nine feet above the sea, is almost level, and, though rough, is roomy enough for a baseball game. Of course if the ball went over the edge, it would tumble a mile or so before stopping. With the top so large, you will realize that the base measures miles across. The upper three thousand feet of the peak is but a gigantic mass, almost destitute of soil or vegetation. Some of the rocks are flecked and spotted with lichens, and a few patches of moss and straggling, beautiful alpine flowers can be found during August. There is but little chance for snow to lodge, and for nearly three thousand feet the peak rises a bald, broken, impressive stone tower.

While Harriet and I were eating luncheon, a ground-hog that I had fed on other visits came out to see if there was anything for him. Some sparrows also lighted near; they looked hungry, so we left some bread for them and then climbed upon the "tip-top," where our picture was taken.

From the tip-top we could see more than a hundred miles toward any point of the compass. West of us we saw several streams that were flowing away toward the Pacific; east of us the streams flowed to the Atlantic. I told Harriet that the many small streams we saw all grew larger as they neared the sea. Harriet lived at the "big" end of the Arkansas River. She suddenly wanted to know if I could show her the "little end of the Arkansas River."

After an hour on top we started downward and homeward, the little mountain-climber feeling happy and lively. But she was careful, and only once during the day did she slip, and this slip was hardly her fault: we were coming off an enormous smooth boulder that was wet from the new snow that was melting, when both Harriet's feet shot from under her and she fell, laughing, into my arms.

ON THE TIP-TOP OF LONG'S PEAK

"Hello, Top, I am glad to see you," said Harriet when we came to the horses. While riding homeward I told Harriet that I had often climbed the peak by moonlight. On the way down she said good-bye to the little trees at timber-line, the squirrels, and the ouzel. When I at last lifted Harriet off old Top at the cabin, many people came out to greet her. To all she said, "Yes, I 'm tired, but some time I want to go up by moonlight."

Midget, the Return Horse

Midget, the Return Horse

In many of the Western mining-towns, the liverymen keep "return horses,"—horses that will return to the barn when set at liberty, whether near the barn or twenty miles away. These horses are the pick of their kind. They have brains enough to take training readily, and also to make plans of their own and get on despite the unexpected hindrances that sometimes occur. When a return horse is ridden to a neighboring town, he must know enough to find his way back, and he must also be so well trained that he will not converse too long with the horse he meets going in the opposite direction.

The return horse is a result of the necessities of mountain sections, especially the needs of miners. Most Western mining-towns are located upon a flat or in a gulch. The mines are rarely near the town, but are on the mountain-slopes above it. Out of town go a dozen roads or trails that extend to the mines, from one to five miles away, and much higher than the town. A miner does not mind walking down to the town, but he wants to ride back; or the prospector comes in and wants to take back a few supplies. The miner hires a return horse, rides it to the mine, and then turns the horse loose. It at once starts to return to the barn. If a horse meets a freight wagon coming up, it must hunt for a turnout if the road is narrow, and give the wagon the right of way. If the horse meets some one walking up, it must avoid being caught.

The San Juan mining section of southwestern Colorado has hundreds of these horses. Most of the mines are from one thousand to three thousand feet above the main supply-points, Ouray, Telluride, and Silverton. Ouray and Telluride are not far apart by trail, but they are separated by a rugged range that rises more than three thousand feet above them. Men often go by trail from one of these towns to the other, and in so doing usually ride a return horse to the top of the range, then walk down the other side.

"Be sure to turn Jim loose before you reach

A MINER ON A RETURN HORSE

the summit; he won't come back if you ride him even a short distance on the other side," called a Telluride liveryman to me as I rode out of his barn. It seems that the most faithful return horse may not come back if ridden far down the slope away from home, but may stray down it rather than climb again to the summit to return home. The rider is warned also to "fasten up the reins and see that the cinches are tight" when he turns the horse loose. If the cinches are loose, the saddle may turn when the horse rolls; or if the reins are down, the horse may graze for hours. Either loose reins or loose cinches may cripple a horse by entangling his feet, or by catching on a snag in the woods. Once loose, the horse generally starts off home on a trot. But he is not always faithful. When a number of these horses are together, they will occasionally play too long on the way. A great liking for grass sometimes tempts them into a ditch, where they may eat grass even though the reins are up.

The lot of a return horse is generally a hard one. A usurper occasionally catches a horse and rides him far away. Then, too often, his owner blames him for the delay, and for a time gives him only half-feed to "teach him not to fool along." Generally ~~the~~ return horse must also be a good snow horse, able to flounder and willing to make his way through deep drifts. He may be thirsty on a warm day, but he must go all the way home before having a drink. Often, in winter, he is turned loose at night on some bleak height to go back over a lonely trail, a task which he does not like. Horses, like most animals and like man, are not at ease when alone. A fallen tree across the trail or deepened snow sometimes makes the horse's return journey a hard one. On rare occasions, cinch or bridle gets caught on a snag or around his legs, and cripples him or entangles him so that he falls a victim to the unpitying mountain lion or some other carnivorous animal.

I have never met a return horse without stopping to watch it as far as it could be seen. They always go along with such unconscious confidence and quiet alertness that they are a delight to behold. Many good days I have had in their company, and on more than one occasion their alertness, skill, and strength have saved me either from injury or from the clutches of that great white terror the snow-slide.

The February morning that I rode "Midget" out of Alma began what proved to be by far the most delightful association that I have ever had with a return horse, and one of the happiest experiences with nature and a dumb animal that has ever come into my life.

I was in government experiment work as "State Snow Observer," and wanted to make some observations on the summit peaks of the "Twelve-Mile" and other ranges. Midget was to carry me far up the side of these mountains to the summit of Hoosier Pass. A heavy snow had fallen a few days before I started out. The wind had drifted most of this out of the open and piled it deeply in the woods and gulches. Midget galloped merrily away over the wind-swept ground. We came to a gulch, I know not how deep, that was filled with snow, and here I began to appreciate Midget. Across this gulch it was necessary for us to go. The snow was so deep and so soft that I dismounted and put on my snowshoes and started to lead Midget across. She followed willingly. After a few steps, a flounder and a snort caused me to look back, and all I could see of Midget was her two little ears wriggling in the snow. When we reached the other side, Midget came out breathing heavily, and at once shook her head to dislodge the snow from her forehead and her ears. She was impatient to go on, and before I could take off my snowshoes and strap them on my back, she was pawing the ground impatiently, first with one little fore foot and then with the other. I leaped into the saddle and away we went again. We had a very pleasant morning of it.

About eleven o'clock I dismounted to take a picture of the snowy slope of Mt. Silverheels. Evidently Midget had never before seen a kodak. She watched with extraordinary interest the standing of the little three-legged affair upon the ground and the mounting of the small black box upon it. She pointed her ears at it; tilted her head to one side and moved her nose up and down. I moved away from her several feet to take the picture. She eyed the kodak with such intentness that I invited her to come over and have a look at it. She came at once, turning her head and neck to one side to prevent the bridle-reins, which I had thrown upon the ground, from entangling her feet. Once by me, she looked the kodak and tripod over with interest, smelled of them, but was careful not to strike the tripod with her feet or to overturn it and the kodak with her nose. She seemed so interested that I told her all about what I was doing, — what I was taking a picture of, why I was taking it, and how long an exposure I was going to give it; and finally I said to her: "To-morrow, Midget, when you are back in your stall in the barn at Alma, eating oats, I shall be on the other side of Mt. Silverheels, taking pictures there. Do you understand?" She pawed the ground with her right fore foot with such a satisfied look upon her face that I was sure she thought she understood all about it.

From time to time I took other pictures, and after the first experience Midget did not wait to be invited to come over and watch me, but always followed me to every new spot where I set the tripod and kodak down, and on each occasion I talked freely with her, and she seemed to understand and to be much interested.

Shortly after noon, when I was taking a picture, Midget managed to get her nose into my mammoth outside coat-pocket. There she found something to her liking. It was my habit to eat lightly when rambling about the mountains, often eating only once a day, and occasionally going two or three days without food. I had a few friends who were concerned about me, and who were afraid I might some time starve to death. So, partly as a joke and partly in earnest, they would mail me a package of something to eat, whenever they knew at what post-office I was likely to turn up. At Alma, the morning I hired Midget, the prize package which I drew from the post-office contained salted peanuts. I did not care for them, but put them into my pocket. It was past noon and Midget was hungry. I was chattering away to her about picture-taking when, feeling her rubbing me with her nose, I put my hand around to find that she was eating salted peanuts from my big coat-pocket. Midget enjoyed them so much that I allowed her to put her nose into my pocket and help herself, and from time to time, too, I gave her a handful of them until they were all gone.

Late in the afternoon, Midget and I arrived at the top of Hoosier Pass. I told her to look tired and I would take her picture. She dropped her head and neck a little, and there on the wind-swept pass, with the wind-swept peaks in the background, I photographed her. Then I told her it was time to go home, that it was sure to be after dark before she could get back. So I tightened the cinches, fastened up the bridle-rein over the horn of the saddle, and told her to go. She looked around at me, but did not move. Evidently she preferred to stay with me. So I spoke to her sternly and said, "Midget, you will have to go home!" Without even looking round, she kicked up her heels and trotted speedily down the mountain and disappeared. I did not imagine that we would meet again for some time.

I went on, and at timber-line on Mt. Lincoln I built a camp-fire and without bedding spent the night by it. The next day I climbed several peaks, took many photographs, measured many snowdrifts, and made many notes in my notebook. When night came on, I descended from the crags and snows into the woods, built a fire, and spent the night by it, sleeping for a little while at a time. Awakening with the cold, I would get up and revive my fire, and then lie down to sleep. The next day a severe storm came on, and I was compelled to huddle by my fire all day, for the wind was so fierce and the snow so blinding that it would have been extremely risky to try to cross the craggy and slippery mountain-summits. All that day I stayed by the fire, but that night, instead of trying to get a little sleep there, I crawled into a newly formed snowdrift, and in it slept soundly and quite comfortably until morning. Toward noon the storm ceased, but it had delayed me a day. I had brought with me only a pound of raisins, and had eaten these during the first two days. I felt rather hungry, and almost wished I had saved some of the salted peanuts that I had given Midget, but I felt fresh and vigorous, and joyfully I made my way over the snowy crest of the continent.

Late that night I came into the mining-town of Leadville. At the hotel I found letters and a telegram awaiting me. This telegram told me that it was important for me to come to the Pike's Peak National Forest at the earliest possible moment.

After a light supper and an hour's rest, I again tied on my snowshoes, and at midnight started to climb. The newly fallen snow on the steep mountain-side was soft and fluffy. I sank so deeply into it and made such slow progress that it was late in the afternoon of the next day before I reached timber-line on the other side. The London mine lay a little off my course, and knowing that miners frequently rode return horses up to it, I thought that by going to the mine I might secure a return horse to carry me back to Alma, which was about thirteen miles away. With this in mind, I started off in a hurry. In my haste I caught one of my webbed shoes on the top of a gnarly, storm-beaten tree that was buried and hidden in the snow. I fell, or rather dived, into the snow, and in so doing broke a snowshoe and lost my hat. This affair delayed me a little, and I gave up going to the mine, but concluded to go to the trail about a mile below it, and there intercept the first return horse that came down. Just before I reached the trail, I heard a horse coming.

As this trail was constantly used, the snow was packed down, while the untrampled snow on each side of it lay from two to four feet deep. Seeing that this pony was going to get past before I could reach the trail, I stopped, took a breath, and called out to it. When I said, "Hello, pony," the pony did not hello. Instead of slackening its pace, it seemed to increase it. Knowing that this trail was one that Midget had often to cover, I concluded as a forlorn hope to call her name, thinking that the pony might be Midget. So I called out, "Hello, Midget!" The pony at once stopped, looked all around, and gave a delighted little whinny. It was Midget! The instant she saw me, she tried to climb up out of the trail into the deep snow where I was, but I hastened to prevent her. Leaping down by her side, I put my arm around her neck, and told her that I was very glad to see her, and that I wanted to ride to Alma. Her nose found its way into my coat-pocket. "Well, Midget, it is too bad. Really, I was not expecting to see you, and I haven't a single salted peanut, but if you will just allow me to ride this long thirteen miles into Alma, I will give you all the salted peanuts that you will be allowed to eat. I am tired, and should very much like to have a ride. Will you take me?" She at once started to paw the snowy trail with a small fore foot, as much as to say, "Hurry up!" I took off my snowshoes, and without waiting to fasten them on my back, jumped into the saddle. In a surprisingly short time, and with loud stamping on the floor, Midget carried me into the livery barn at Alma.

When her owner saw a man in the saddle, he was angry, and reminded me that it was unfair and illegal to capture a return horse; but when he recognized me, he at once changed his tone, and he became friendly when I told him that Midget had invited me to ride. He said that as she had invited me to ride I should have to pay the damages to her. I told him that we had already agreed to this. "But how in thunder did you catch her?" he asked. "Yesterday Pat O'Brien tried that, and he is now in the hospital with two broken ribs. She kicked him."

I said good-bye to Midget, and went to my supper, leaving her contentedly eating salted peanuts.

Faithful Scotch

Faithful Scotch

I CARRIED little Scotch all day long in my overcoat pocket as I rode through the mountains on the way to my cabin. His cheerful, cunning face, his good behavior, and the clever way in which he poked his head out of my pocket, licked my hand, and looked at the scenery, completely won my heart before I had ridden an hour. That night he showed so strikingly the strong, faithful characteristics for which collies are noted that I resolved never to part with him. Since then we have had great years together. We have been hungry and happy together, and together we have played by the cabin, faced danger in the wilds, slept peacefully among the flowers, followed the trails by starlight, and cuddled down in winter's drifting snow.

On my way home through the mountains with puppy Scotch, I stopped for a night near a deserted ranch-house and shut him up in a small abandoned cabin. He at once objected and set up a terrible barking and howling, gnawing fiercely at the crack beneath the door and trying to tear his way out. Fearing he would break his little puppy teeth, or possibly die from frantic and persistent efforts to be free, I concluded to release him from the cabin. My fears that he would run away if left free were groundless. He made his way to my saddle, which lay on the ground near by, crawled under it, turned round beneath it, and thrust his little head from beneath the arch of the horn and lay down with a look of contentment, and also with an air which said, "I 'll take care of this saddle. I 'd like to see any one touch it."

And watch it he did. At midnight a cowboy came to my camp-fire. He had been thrown from his bronco and was making back to his outfit on foot. In approaching the fire his path lay close to my saddle, beneath which Scotch was lying. Tiny Scotch flew at him ferociously; never have I seen such faithful ferociousness in a dog so small and young. I took him in my hands and assured him that the visitor was welcome, and in a moment little Scotch and the cowboy were side by side gazing at the fire.

SCOTCH NEAR TIMBER-LINE

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I suppose his bravery and watchful spirit may be instinct inherited from his famous forbears who lived so long and so cheerfully on Scotland's heaths and moors. But, with all due respect for inherited qualities, he also has a brain that does a little thinking and meets emergencies promptly and ably.

He took serious objection to the coyotes which howled, serenaded, and made merry in the edge of the meadow about a quarter of a mile from my cabin. Just back of their howling-ground was a thick forest of pines, in which were scores of broken rocky crags. Into the tangled forest the coyotes always retreated when Scotch gave chase, and into this retreat he dared not pursue them. So long as the coyotes sunned themselves, kept quiet, and played, Scotch simply watched them contentedly from afar; but the instant they began to howl and yelp, he at once raced over and chased them into the woods. They often yelped and taunted him from their safe retreat, but Scotch always took pains to lie down on the edge of the open and remain there until they became quiet or went away.

During the second winter that Scotch was with me and before he was two years of age, one of the wily coyotes showed a tantalizing spirit and some interesting cunning which put Scotch on his mettle. One day when Scotch was busy driving the main pack into the woods, one that trotted lame with the right fore leg emerged from behind a rocky crag at the edge of the open and less than fifty yards from Scotch. Hurrying to a willow clump about fifty yards in Scotch's rear, he set up a broken chorus of yelps and howls, seemingly with delight and to the great annoyance of Scotch, who at once raced back and chased the noisy taunter into the woods.

The very next time that Scotch was chasing the pack away, the crippled coyote again sneaked from behind the crag, took refuge behind the willow clump, and began delivering a perfect shower of broken yelps. Scotch at once turned back and gave chase. Immediately the entire pack wheeled from retreat and took up defiant attitudes in the open, but this did not seem to trouble Scotch; he flung himself upon them with great ferocity, and finally drove them all back into the woods. However, the third time that the cunning coyote had come to his rear, the entire pack stopped in the edge of the open and, for a time, defied him. He came back from this chase panting and tired and carrying every expression of worry. It seemed to prey upon him to such an extent that I became a little anxious about him.

One day, just after this affair, I went for the mail, and allowed Scotch to go with me. I usually left him at the cabin, and he stayed unchained and was faithful, though it was always evident that he was anxious to go with me and also that he was exceedingly lonely when left behind. But on this occasion he showed such eagerness to go that I allowed him the pleasure.

At the post-office he paid but little attention to the dogs which, with their masters, were assembled there, and held himself aloof from them, squatting on the ground with head erect and almost an air of contempt for them, but it was evident that he was watching their every move. When I started homeward, he showed great satisfaction by leaping and barking.

That night was wildly stormy, and I concluded to go out and enjoy the storm on some wind-swept crags. Scotch was missing and I called him, but he did not appear, so I went alone. After being tossed by the wind for more than an hour, I returned to the cabin, but Scotch was still away. This had never occurred before, so I concluded not to go to bed until he returned. He came home after daylight, and was accompanied by another dog,—a collie, which belonged to a rancher who lived about fifteen miles away. I remembered to have seen this dog at the post-office the day before. My first thought was to send the dog home, but I finally concluded to allow him to remain, to see what would come of his presence, for it was apparent that Scotch had gone for him. He appropriated Scotch's bed in the tub, to the evident satisfaction of Scotch. During the morning the two played together in the happiest possible manner for more than an hour. At noon I fed them together.

In the afternoon, while I was writing, I heard the varied voices of the coyote pack, and went out with my glass to watch proceedings, wondering how the visiting collie would play his part.

There went Scotch, as I supposed, racing for the yelping pack, but the visiting collie was not to be seen. The pack beat the usual sullen, scattering retreat, and while the dog, which I supposed to be Scotch, was chasing the last slow tormenter into the woods, from behind the crag came the big limping coyote, hurrying toward the willow clump from behind which he was accustomed to yelp triumphantly in Scotch's rear. I raised the glass for a better look, all the time wondering where the visiting collie was keeping himself. I was unable to see him, yet I recollected he was with Scotch less than an hour before.

The lame coyote came round the willow clump as usual, and threw up his head as though to bay at the moon. Then the unexpected happened. On the instant, Scotch leaped into the air out of the willow clump, and came down upon the coyote's back! They rolled about for some time, when the coyote finally shook himself free and started at a lively limping pace for the woods, only to be grabbed again by the visiting collie, which had been chasing the pack, and which I had mistaken for Scotch. The pack beat a swift retreat. For a time both dogs fought the coyote fiercely, but he at last tore himself free, and escaped into the pines, badly wounded and bleeding. I never saw him again. That night the visiting collie went home. As Scotch was missing that night for a time, I think he may have accompanied him at least a part of the way.

One day a young lady from Michigan came along and wanted to climb Long's Peak all alone, without a guide. I agreed to consent to this if first she would climb one of the lesser peaks unaided, on a stormy day. This the young lady did, and by so doing convinced me that she had a keen sense of direction and an abundance of strength, for the day on which she climbed was a stormy one, and the peak was completely befogged with clouds. After this, there was nothing for me to do but allow her to climb Long's Peak alone.

Just as she was starting, that cool September morning, I thought to provide for an emergency by sending Scotch with her. He knew the trail well and would, of course, lead her the right way, providing she lost the trail. "Scotch," said I, "go with this young lady, take good care of her, and stay with her till she returns. Don't you desert her." He gave a few barks of satisfaction and started with her up the trail, carrying himself in a manner which indicated that he was both honored and pleased. I felt that the strength and alertness of the young lady, when combined with the faithfulness and watchfulness of Scotch, would make the journey a success, so I went about my affairs as usual. When darkness came on that evening, the young lady had not returned.

She climbed swiftly until she reached the rocky alpine moorlands above timber-line. Here she lingered long to enjoy the magnificent scenery and the brilliant flowers. It was late in the afternoon when she arrived at the summit of the peak. After she had spent a little time there resting and absorbing the beauty and grandeur of the scene, she started to return. She had not proceeded far when clouds and darkness came on, and on a slope of slide-rock she lost the trail.

Scotch had minded his own affairs and enjoyed himself in his own way all day long. Most of the time he followed her closely, apparently indifferent to what happened, but when she, in the darkness, left the trail and started off in the wrong direction, he at once came forward, and took the lead with an alert, aggressive air. The way in which he did this should have suggested to the young lady that he knew what he was about, but she did not appreciate this fact. She thought he had become weary and wanted to run away from her, so she called him back. Again she started in the wrong direction; this time Scotch got in front of her and refused to move. She pushed him out of the way. Once more he started off in the right direction, and this time she scolded him and reminded him that his master had told him not to desert her. Scotch dropped his ears and sheepishly fell in behind her and followed meekly along. He had obeyed orders.

After traveling a short distance, the young lady realized that she had lost her way, but it never occurred to her that she had only to trust Scotch and he would lead her directly home. However, she had the good sense to stop where she was, and there, among the crags, by the stained remnants of winter's snow, thirteen thousand feet above sea-level, she was to spend the night. The cold wind blew a gale, roaring and booming among the crags, the alpine brooklet turned to ice, while, in the lee of the crag, shivering with cold, hugging shaggy Scotch in her arms, she lay down for the night.

I had given my word not to go in search of her if she failed to return. However, I sent out four guides to look for her. They suffered much from cold as they vainly searched among the crags through the dark hours of the windy night. Just at sunrise one of them found her, almost exhausted, but, with slightly frost-bitten fingers, still hugging Scotch in her arms. He gave her food and drink and additional wraps, and without delay started with her down the trail. As soon as she was taken in charge by the guide, patient Scotch left her and hurried home. He had saved her life.

Scotch's hair is long and silky, black with a touch of tawny about the head and a little bar of white on the nose. He has the most expressive and pleasing dog's face I have ever seen. There is nothing he enjoys so well as to have some one kick the football for him. For an hour at a time he will chase it and try to get hold of it, giving an occasional eager, happy bark. He has good eyes, and these, with his willingness to be of service, have occasionally made him useful to me in finding articles which I, or some one else, had forgotten or lost on the trail. Generally it is difficult to make him understand just what has been lost or where he is to look for it, but when once he understands, he keeps up the search, sometimes for hours if he does not find the article before. He is always faithful in guarding any object that I ask him to take care of. I have but to throw down a coat and point at it, and he will at once lie down near by, there to remain until I come to dismiss him. He will allow no one else to touch it. His attitude never fails to convey the impression that he would die in defense of the thing intrusted to him, but desert it or give it up, never!

One February day I took Scotch and started up Long's Peak, hoping to gain its wintry summit. Scotch easily followed in my snowshoe-tracks. At an altitude of thirteen thousand feet on the wind-swept steeps there was but little snow, and it was necessary to leave snowshoes behind. After climbing a short distance on these icy slopes, I became alarmed for the safety of Scotch. By and by I had to cut steps in the ice. This made the climb too perilous for him, as he could not realize the danger he was in should he miss a step. There were places where slipping from these steps meant death, so I told Scotch to go back. I did not, however, tell him to watch my snowshoes, for so dangerous was the climb that I did not know that I should ever get back to them myself. However, he went to the snowshoes, and with them he remained for eight cold hours until I came back by the light of the stars.

On a few occasions I allowed Scotch to go with me on short winter excursions. He enjoyed these immensely, although he had a hard time of it and but very little to eat. When we camped among the spruces in the snow, he seemed to enjoy sitting by my side and silently watching the evening fire, and he contentedly cuddled with me to keep warm at night.

One cold day we were returning from a four days' excursion when, a little above timber-line, I stopped to take some photographs. To do this it was necessary for me to take off my sheepskin mittens, which I placed in my coat-pocket, but not securely, as it proved. From time to time, as I climbed to the summit of the Continental Divide, I stopped to take photographs, but on the summit the cold pierced my silk gloves and I felt for my mittens, to find that one of them was lost. I stooped, put an arm around Scotch, and told him I had lost a mitten, and that I wanted him to go down for it to save me the trouble. "It won't take you very long, but it will be a hard trip for me. Go and fetch it to me." Instead of starting off hurriedly, willingly, as he had invariably done before in obedience to my commands, he stood still. His alert, eager ears drooped, but no other move did he make. I repeated the command in my most kindly tones. At this, instead of starting down the mountain for the mitten, he slunk slowly away toward home. It was clear that he did not want to climb down the steep icy slope of a mile to timber-line, more than a thousand feet

THE CLOUD-CAPPED CONTINENTAL DIVIDE

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below. I thought he had misunderstood me, so I called him back, patted him, and then, pointing down the slope, said, "Go for the mitten, Scotch; I will wait here for you." He started for it, but went unwillingly. He had always served me so cheerfully that I could not understand, and it was not until late the next afternoon that I realized that he had not understood me, but that he had loyally, and at the risk of his life, tried to obey me.

The summit of the Continental Divide, where I stood when I sent him back, was a very rough and lonely region. On every hand were broken snowy peaks and rugged cañons. My cabin, eighteen miles away, was the nearest house to it, and the region was utterly wild. I waited a reasonable time for Scotch to return, but he did not come back. Thinking he might have gone by without my seeing him, I walked some distance along the summit, first in one direction and then in the other, but, seeing neither him nor his tracks, I knew that he had not yet come back. As it was late in the afternoon, and growing colder, I decided to go slowly on toward my cabin. I started along a route that I felt sure he would follow, and I reasoned that he would overtake me. Darkness came on and still no Scotch, but I kept going forward. For the remainder of the way I told myself that he might have got by me in the darkness.

When, at midnight, I arrived at the cabin, I expected to be greeted by him, but he was not there. I felt that something was wrong and feared that he had met with an accident. I slept two hours and rose, but still he was missing, so I concluded to tie on my snowshoes and go to meet him. The thermometer showed fourteen below zero.

I started at three o'clock in the morning, feeling that I should meet him without going far. I kept going on and on, and when, at noon, I arrived at the place on the summit from which I had sent him back, Scotch was not there to cheer the wintry, silent scene.

I slowly made my way down the slope, and at two in the afternoon, twenty-four hours after I had sent Scotch back, I paused on a crag and looked below. There in the snowy world of white he lay by the mitten in the snow. He had misunderstood me, and had gone back to guard the mitten instead of to get it. He could hardly contain himself for joy when he saw me. He leaped into the air, barked, jumped, rolled over, licked my hand, whined, grabbed the mitten, raced round and round me, and did everything that an alert, affectionate, faithful dog could do to show that he appreciated my appreciation of his supremely faithful services.

After waiting for him to eat a luncheon, we started merrily towards home, where we arrived at one o'clock in the morning. Had I not returned, I suppose Scotch would have died beside the mitten. In a region cold, cheerless, oppressive, without food, and perhaps to die, he lay down by the mitten because he understood that I had told him to. In the annals of dog heroism, I know of no greater deed.

Bob and Some Other Birds

Bob and Some Other Birds

Birds are plentiful on the Rockies, and the accumulating information concerning them may, in a few years, accredit Colorado with having more kinds of birds than any other State. The mountains and plains of Colorado carry a wide range of geographic conditions,—a variety of life-zones,—and in many places there is an abundance of bird-food of many kinds. These conditions naturally produce a large variety of birds throughout the State.

Notwithstanding this array of feathered inhabitants, most tourists who visit the West complain of a scarcity of birds. But birds the Rockies have, and any bird-student could tell why more of them are not seen by tourists. The loud manners of most tourists who invade the Rockies simply put the birds to flight. When I hear the approach of tourists in the wilds, I feel instinctively that I should fly for safety myself. "Our little brothers of the air" the world over dislike the crowd, and will linger only for those who come with deliberation and quiet.

This entire mountain-section, from foothills to mountain-summits, is enlivened in nesting-time with scores of species of birds. Low down on the foothills one will find Bullock's oriole, the red-headed woodpecker, the Arkansas kingbird, and one will often see, and more often hear, the clear, strong notes of the Western meadowlark ringing over the hills and meadows. The wise, and rather murderous, magpie goes chattering about. Here and there the quiet bluebird is seen. The kingfisher is in his appointed place. Long-crested jays, Clarke's crows, and pigmy nuthatches are plentiful, and the wild note of the chickadee is heard on every hand. Above the altitude of eight thousand feet you may hear, in June, the marvelous melody of Audubon's hermit thrush.

Along the brooks and streams lives the water-ouzel. This is one of the most interesting and self-reliant of Rocky Mountain birds. It loves the swift, cool mountain-streams. It feeds in them, nests within reach of the splash of their spray, closely follows their bent and sinuous course in flight, and from an islanded boulder mingles its liquid song with the music of the moving waters. There is much in the life of the ouzel that is refreshing and inspiring. I wish it were better known.

Around timber-line in summer one may hear the happy song of the white-throated sparrow. Here and above lives the leucosticte. Far above the vanguard of the brave pines, where the brilliant flowers fringe the soiled remnants of winter's drifted snow, where sometimes the bees hum and the painted butterflies sail on easy wings, the broad-tailed hummingbird may occasionally be seen, while still higher the eagles soar in the quiet bending blue. On the heights, sometimes nesting at an altitude of thirteen thousand feet, is found the ptarmigan, which, like the Eskimo, seems supremely contented in the land of crags and snows.

Of all the birds on the Rockies, the one most marvelously eloquent is the solitaire. I have often felt that everything stood still and that every beast and bird listened while the matchless solitaire sang. The hermit thrush seems to suppress one, to give one a touch of reflective loneliness; but the solitaire stirs one to be up and doing, gives one the spirit of youth. In the solitaire's song one feels all the freshness and the promise of spring. The song seems to be born of ages of freedom beneath peaceful skies, of the rhythm of the universe, of a mingling of the melody of winds and waters and of all rhythmic sounds that murmur and echo out of doors and of every song that Nature sings in the wild gardens of the world. I am sure I have never been more thoroughly wide awake and hopeful than when listening to the solitaire's song. The world is flushed with a diviner atmosphere, every object carries a fresher significance, there are new thoughts and clear, calm hopes sure to be realized on the enchanted fields of the future. I was camping alone one evening in the deep solitude of the Rockies. The slanting sun-rays were glowing on St. Vrain's crag-crowned hills and everything was at peace, when, from a near-by treetop came the triumphant, hopeful song of a solitaire, and I forgot all except that the world was young. One believes in fairies when the solitaire sings. Some of my friends have predicted that I shall some time meet with an accident and perish in the solitudes alone. If their prediction should come true, I shall hope it will be in the summer-time, while the flowers are at their best, and that during my last conscious moments I shall hear the melody of the solitaire singing as I die with the dying day.

I sat for hours in the woods one day, watching a pair of chickadees feeding their young ones. There were nine of these hungry midgets, and, like nine small boys, they not only were always hungry, but were capable of digesting everything. They ate spiders and flies, green worms, ants, millers, dirty brown worms, insect-eggs by the dozen, devil's-darning-needles, woodlice, bits of lichen, grasshoppers, and I know not how many other things. I could not help thinking that when one family of birds destroyed such numbers of injurious insects, if all the birds were to stop eating, the insects would soon destroy every green tree and plant on earth.

One of the places where I used to camp to enjoy the flowers, the trees, and the birds was on the shore of a glacier lake. Near the lake were eternal snows, rugged gorges, and forests primeval. To its shore, especially in autumn, came many bird callers. I often screened myself in a dense clump of fir trees on the north shore to study the manners of birds which came near. To help attract and detain them, I scattered feed on the shore, and I spent interesting hours and days in my hiding-place enjoying the etiquette of birds at feast and frolic.

I was lying in the sun, one afternoon, just outside my fir clump, gazing out across the lake, when a large black bird alighted on the shore some distance around the lake. "Surely," I said to myself, "that is a crow." A crow I had not seen or heard of in that part of the country. I wanted to call to him that he was welcome to eat at my free-lunch counter, when it occurred to me that I was in plain sight. Before I could move, the bird rose in the air and started flying leisurely toward me. I hoped he would see, or smell, the feed and tarry for a time; but he rose as he advanced, and as he appeared to be looking ahead, I had begun to fear he would go by without stopping, when he suddenly wheeled and at the same instant said "Hurrah," as distinctly as I have ever heard it spoken, and dropped to the feed. The clearness, energy, and unexpectedness of his "Hurrah" startled me. He alighted and began to eat, evidently without suspecting my presence, notwithstanding the fact that I lay only a few feet away. Some days before, a mountain lion had killed a mountain sheep; a part of this carcass I had dragged to my bird table. Upon this the crow, for such he was, alighted and fed ravenously for some time. Then he paused, straightened up, and took a look about. His eye fell on me, and instantly he squatted as if to hurl himself in hurried flight, but he hesitated, then appeared as if starting to burst out with "Caw" or some such exclamation, but changed his mind and repressed it. Finally he straightened and fixed himself for another good look at me. I did not move, and my clothes must have been a good shade of protective coloring, for he seemed to conclude that I was not worth considering. He looked straight at me for a few seconds, uttered another "Hurrah," which he emphasized with a defiant gesture, and went on energetically eating. In the midst of this, something alarmed him, and he flew swiftly away and did not come back. Was this crow a pet that had concluded to strike out for himself? Or had his mimicry or his habit of laying hold of whatever pleased him caused him to appropriate this word from bigger folk?

Go where you will over the Rockies and the birds will be with you. One day I spent several hours on the summit of Long's Peak, and while there twelve species of birds alighted or passed near enough for me to identify them. One of these birds was an eagle, another a humming-bird.

On a June day, while the heights were more than half covered with winter's snow, I came across the nest of a ptarmigan near a drift and at an altitude of thirteen thousand feet above sea-level. The ptarmigan, with their home above tree-line, amid eternal snows, are wonderfully self-reliant and self-contained. The ouzel, too, is self-poised, indifferent to all the world but his brook,

PTARMIGAN

and showing an appreciation for water greater, I think, than that of any other landsman. These birds, the ptarmigan and the ouzel, along with the willow thrush, who sings out his melody amid the shadows of the pines, who puts his woods into song,—these birds of the mountains are with me when memory takes me back a solitary visitor to the lonely places of the Rockies.

The birds of the Rockies, as well as the bigger folk who live there, have ways of their own which distinguish them from their kind in the East. They sing with more enthusiasm, but with the same subtle tone that everywhere tells that all is right with the world, and makes all to the manner born glad to be alive.

Nothing delights me more than to come across a person who is interested in trees; and I have long thought that any one who appreciates trees or birds is one who is either good or great, or both. I consider it an honor to converse with one who knows the birds and the trees, and have more than once gone out of my way to meet one of those favored mortals. I remember one cold morning I came down off the mountains and went into a house to get warm. Rather I went in to scrape an acquaintance with whomsoever could be living there who remembered the birds while snow and cold prevailed, — when Nature forgot. To get warm was a palpable excuse. I was not cold; I had no need to stop; I simply wanted to meet the people who had, on this day at least, put out food and warm water for the birds; but I have ever since been glad that I went in, for the house shielded from the cold a family whom it is good to know, and, besides making their acquaintance, I met "Bob" and heard her story.

Every one in the house was fond of pets. Rex, a huge St. Bernard, greeted me at the door, and with a show of satisfaction accompanied me to a chair near the stove. In going to the chair some forlorn snowbirds, "that Sarah had found nearly frozen while out feeding the birds this morning," hopped out of my way. As I sat down, I noticed an old sack on the floor against the wall before me. All at once this sack came to life, had an idea, or was bewitched, I thought. Anyway it became so active that it held my attention for several seconds, and gave me a little alarm. I was relieved when out of it tumbled an aggressive rooster, which advanced a few steps, flapped, and crowed lustily. "He was brought in to get thawed out; I suppose you will next be wondering where we keep the pig," said my hostess as she advanced to stir the fire, after which she examined "two little cripples," birds in a box behind the stove.

I moved to a cooler seat, by a door which led into an adjoining room. After I had sat down, "Bob," a pet quail, came from somewhere, and advanced with the most serene and dignified air to greet me. After pausing to eye me for a moment, with a look of mingled curiosity and satisfaction, she went under my chair and squatted confidingly on the floor. Bob was the first pet quail I had ever seen, and my questions concerning her brought from my hostess the following story:—

"One day last fall a flock of quail became frightened, and in their excited flight one struck against a neighbor's window and was badly stunned. My husband, who chanced to be near at the time, picked up the injured one and brought it home. My three daughters, who at times had had pet horses, snakes, turtles, and rats, welcomed this shy little stranger and at once set about caring for her injuries. Just before "Bob" had fully recovered, there came a heavy fall of snow, which was followed by such a succession of storms that we concluded to keep her with us, provided she was willing to stay. We gave her the freedom of the house. For some time she was wild and shy; under a chair or the lounge she would scurry if any one approached her. Plainly, she did not feel welcome or safe in our house, and I gave up the idea of taming her. One day, however, we had lettuce for dinner, and while we were at the table Sarah, my eldest daughter, who has a gift for taming and handling wild creatures, declared that Bob should eat out of her hand before night. All that afternoon she tempted her with bits of lettuce, and when evening came, had succeeded so well that never after was Bob afraid of us. Whenever we sat down for a meal, Bob would come running and quietly go in turn to each with coaxing sounds and pleading looks, wanting to be fed. It was against the rules to feed her at meals, but first one, then another, would slip something to her under the table, trying at the same time to appear innocent. The girls have always maintained that their mother, who made the rule, was the first one to break it. No one could resist Bob's pretty, dainty, coaxing ways.

"She is particularly fond of pie-crust, and many a time I have found the edge picked off the pie I had intended for dinner. Bob never fails to find a pie, if one is left uncovered. I think it is the shortening in the pie-crust that gives it the delicious flavor, for lard she prefers above all of her many foods. She cares least of all for grain. My daughters say that Bob's fondness for graham gems accounts for the frequency of their recent appearances on our table.

"After trying many places, Bob at last found a roosting-place that suited her. This was in a leather collar-box on the bureau, where she could nestle up close to her own image in the mirror. Since discovering this place she has never failed to occupy it at night. She is intelligent, and in so many ways pleasing that we are greatly attached to her."

Here I had to leave Bob and her good friends behind; but some months afterward my hostess of that winter day told me the concluding chapters of Bob's life.

"Bob disliked to be handled; though pleasing and irresistibly winsome, she was not in the least affectionate, and always maintained a dignified, ladylike reserve. But with the appearance of spring she showed signs of lonesomeness. With none of her kind to love, she turned to Rex and on him lavished all of her affection. When Rex was admitted to the house of a morning, she ran to meet him with a joyful cackle,—an utterance she did not use on any other occasion,—and with soft cooing sounds she followed him about the house. If Rex appeared bored with her attentions and walked away, she followed after, and persisted in tones that were surely scolding until he would lie down. Whenever he lay with his huge head between his paws, she would nestle down close to his face and remain content so long as he was quiet. Sometimes when he was lying down she would climb slowly over him; at each step she would put her foot down daintily, and as each foot touched him there was a slight movement of her head and a look of satisfaction. These climbs usually ended by her scratching in the long hair of his tail, and then nestling down into it.

"One day I was surprised to see her kiss Rex. When I told my family of this, they laughed heartily and were unable to believe me. Later, we all witnessed this pretty sight many times. She seemed to prefer to kiss him when he was lying down, with his head raised a little above the floor. Finding him in this position, she would walk beside him, reach up and kiss his face again and again, all the time cooing softly to him.

"Toward spring Bob's feathers became dull and somewhat ragged, and with the warm days came our decision to let her go outside. She was delighted to scratch in the loose earth around the rosebushes, and eagerly fed on the insects she found there. Her plumage soon took on its natural trimness and freshness. She did not show any inclination to leave, and with Rex by her or near her, we felt that she was safe from cats, so we soon allowed her to remain out all day long.

"Passers-by often stopped to watch Bob and

Rex playing together. Sometimes he would go lumbering across the yard while she, plainly displeased at the fast pace, hurried after with an incessant scolding chatter as much as to say: 'Don't go so fast, old fellow. How do you expect me to keep up?' Sometimes, when Rex was lying down eating a bone, she would stand on one of his fore legs and quietly pick away at the bone.

"The girls frequently went out to call her, and did so by whistling 'Bob White.' She never failed to answer promptly, and her response sounded like *chee chos*, *chee chos*, which she uttered before hurrying to them.

"One summer morning I found her at the kitchen door waiting to be let out. I opened the door and watched her go tripping down the steps. When she started across the yard I cautioned her to 'be a little lady, and don't get too far away.' Rex was away that morning, and soon one of the girls went out to call her. Repeated calls brought no answer. We all started searching. We wondered if the cat had caught her, or if she had been lured away by the winning calls of her kind. Beneath a cherry tree near the kitchen door, just as Rex came home, we found her, bloody and dead. Rex, after pushing her body tenderly about with his nose, as if trying to help her to rise, looked up and appealed piteously to us. We buried her beneath the rosebush near which she and Rex had played."

Kinnikinick

Kinnikinick

The kinnikinick is a plant pioneer. Often it is the first plant to make a settlement or establish a colony on a barren or burned-over area. It is hardy, and is able to make a start and thrive in places so inhospitable as to afford most plants not the slightest foothold. In such places the kinnikinick's activities make changes which alter conditions so beneficially that in a little while plants less hardy come to join the first settler. The pioneer work done by the kinnikinick on a barren and rocky realm has often resulted in the establishment of a flourishing forest there.

The kinnikinick, or *Arctostaphylos Uva-Ursi*, as the botanists name it, may be called a ground-loving vine. Though always attractive, it is in winter that it is at its best. Then its bright green leaves and red berries shine among the snow-flowers in a quiet way that is strikingly beautiful.

Since it is beautiful as well as useful, I had long admired this ever-cheerful, ever-spreading vine before I appreciated the good though humble work it is constantly doing. I had often stopped to greet it, — the only green thing upon a rock ledge or a sandy stretch, — had walked over it in forest avenues beneath tall and stately pines, and had slept comfortably upon its spicy, elastic rugs, liking it from the first. But on one of my winter tramps I fell in love with this beautiful evergreen.

The day was a cold one, and the high, gusty wind was tossing and playing with the last snowfall. I had been snowshoeing through the forest, and had come out upon an unsheltered ridge that was a part of a barren area which repeated fires had changed from a forested condition to desert. The snow lay several feet deep in the woods, but as the gravelly distance before me was bare, I took off my snowshoes. I went walking, and at times blowing, along the bleak ridge, scarcely able to see through the snow-filled air. But during a lull the air cleared of snow-dust and I paused to look about me. The wind still roared in the distance, and against the blue eastern sky it had a column of snow whirling that was dazzling white in the afternoon sun. On my left a mountain rose with easy slope to crag-crowned heights, and for miles swept away before me with seared side barren and dull. A few cloudlets of snowdrifts and a scattering of mere tufts of snow stood out distinctly on this big, bare slope.

I wondered what could be holding these few spots of snow on this wind-swept slope. I finally went up to examine one of them. Thrust out and lifted just above the snow of the tuft before me was the jeweled hand of a kinnikinick; and every snow-deposit on the slope was held in place by the green arms of this plant. Here was this beautiful vinelike shrub gladly growing on a slope that had been forsaken by all other plants.

To state the situation fairly, all had been burned off by fire and Kinnikinick was the first to come back, and so completely had fires consumed the plant-food that many plants would be unable to live here until better conditions prevailed and the struggle for existence was made less severe. Kinnikinick was making the needed changes; in time it would prepare the way, and other plants, and the pines too, would come back to carpet and plume the slope and prevent wind and water from tearing and scarring the earth.

The seeds of Kinnikinick are scattered by birds, chipmunks, wind, and water. I do not know by what agency the seeds had come to this slope, but here were the plants, and on this dry, fire-ruined, sun-scorched, wind-beaten slope they must have endured many hardships. Many must have perished before these living ones had made a secure start in life.

Once Kinnikinick has made a start, it is constantly assisted to succeed by its own growing success. Its arms catch and hold snow, and this gives a supply of much-needed water. This water is snugly stored beneath the plant, where but little can be reached or taken by the sun or the thirsty winds. The winds, too, which were so unfriendly while it was trying to make a start, now become helpful to the brave, persistent plant. Every wind that blows brings something to it,—dust, powdered earth, trash, the remains of dead insects; some of this material is carried for miles.

All goes to form new soil, or to fertilize or mulch the old. This supplies Kinnikinick's great needs. The plant grows rich from the constant tribute of the winds. The soil-bed grows deeper and richer and is also constantly outbuilding and enlarging, and Kinnikinick steadily increases its size.

In a few years a small oasis is formed in, or rather on, the barren. This becomes a place of refuge for seed wanderers, — in fact, a nursery. Up the slope I saw a young pine standing in a kinnikinick snow-cover. In the edge of the snow-tuft by me, covered with a robe of snow, I found a tiny tree, a mere baby pine. Where did this pine come from? There were no seed-bearing pines within miles. How did a pine seed find its way to this cosy nursery? Perhaps the following is its story: The seed of this little pine, together with a score or more of others, grew in a cone out near the end of the pine-tree limb. This pine was on a mountain several miles from the fire-ruined slope, when one windy autumn day some time after the seeds were ripe, the cone began to open its fingers and the seeds came dropping out.

The seed of this baby tree was one of these, and when it tumbled out of the cone the wind caught it, and away it went over trees, rocks, and gulches, whirling and dancing in the autumn sunlight. After tumbling a few miles in this wild flight, it came down among some boulders. Here it lay until, one very windy day, it was caught up and whirled away again. Before long it was dashed against a granite cliff and fell to the ground; but in a moment, the wind found it and drove it, with a shower of trash and dust, bounding and leaping across a barren slope, plump into this kinnikinick nest. From this shelter the wind could not drive it: Here the little seed might have said, "This is just the place I was looking for; here is shelter from the wind and sun; the soil is rich and damp; I am so tired, I think I'll take a sleep." When the little seed awoke, it wore the green dress of the pine family. The kinnikinick's nursery had given it a start in life.

Under favorable conditions Kinnikinick is a comparatively rapid grower. Its numerous vine-like limbs—little arms—spread or reach outward from the central root, take a new hold upon the earth, and prepare to reach again. The ground beneath it in a little while is completely hidden by its closely crowding leafy arms. In places these soft, pliable rugs unite and form extensive carpets. Strip off these carpets and often all that remains is a barren exposure of sand or gravel on bald or broken rocks, whose surfaces and edges have been draped or buried by its green leaves and red berries.

In May kinnikinick rugs become flower-beds. Each flower is a narrow-throated, pink-lipped, creamy-white jug, and is filled with a drop of exquisitely flavored honey. The jugs in a short time change to smooth purple berries, and in autumn they take on their winter dress of scarlet. When ripe the berries taste like mealy crab-apples. I have often seen chipmunks eating the berries, or apples, sitting up with the fruit in both their deft little hands, and eating it with such evident relish that I frequently found myself thinking of these berries as chipmunk's apples.

Kinnikinick is widely distributed over the earth, and is most often found on gravelly slopes or sandy stretches. Frequently you will find it among scattered pines, trying to carpet their cathedral floor. Many a summer day I have lain down and rested on these flat and fluffy forest rugs, while between the tangled tops of the pines I looked at the blue of the sky or watched the white clouds so serenely floating there. Many a summer night upon these elastic spreads I have lain and gazed at the thick-sown stars, or watched the ebbing, fading camp-fire, at last to fall asleep and to rest as sweetly and serenely as ever did the Scotchman upon his heathered Highlands. Many a morning I have awakened late after a sleep so long that I had settled into the yielding mass and Kinnikinick had put up an arm, either to shield my face with its hand, or to show me, when I should awaken, its pretty red berries and bright green leaves.

One morning, while visiting in a Blackfoot Indian camp, I saw the men smoking kinnikinick leaves, and I asked if they had any legend concerning the shrub. I felt sure they must have a fascinating story of it which told of the Great Spirit's love for Kinnikinick, but they had none. One of them said he had heard the Piute Indians tell

SUMMER AT AN ALTITUDE OF 12,000 FEET

why the Great Spirit had made it, but he could not remember the account. I inquired among many Indians, feeling that I should at last learn a happy legend concerning it, but in vain. One night, however, by my camp-fire, I dreamed that some Alaska Indians told me this legend: —

Long, long ago, Kinnikinick was a small tree with brown berries and broad leaves which dropped to the ground in autumn. One year a great snow came while the leaves were still on, and all trees were flattened upon the ground by the weight of the clinging snow. All broad-leaved trees except Kinnikinick died. When the snow melted, Kinnikinick was still alive, but pressed out upon the ground, crushed so that it could not rise. It started to grow, however, and spread out its limbs on the surface very like a root growth. The Great Spirit was so pleased with Kinnikinick's efforts that he decided to let it live on in its new form, and also that he would send it to colonize many places where it had never been. He changed its berries from brown to red, so that the birds could see its fruit and scatter its seeds far and wide. Its leaves were reduced in size and made permanently green, so that Kinnikinick, like the pines it loves and helps, could wear green all the time.

Whenever I see a place that has been made barren and ugly by the thoughtlessness of man, I like to think of Kinnikinick, for I know it will beautify these places if given a chance to do so. There are on earth millions of acres now almost desert that may some time be changed and beautified by this cheerful, modest plant. Some time many bald and barren places in the Rockies will be plumed with pines, bannered with flowers, have brooks, butterflies, and singing birds, — all of these, and homes, too, around which children will play, — because of the reclaiming work which will be done by charming Kinnikinick.

The Lodge-Pole Pine

The Lodge-Pole Pine

THE trappers gave the Lodge-Pole Pine (*Pinus contorta*, var. *Murrayana*) its popular name on account of its general use by Indians of the West for lodge or wigwam poles. It is a tree with an unusually interesting life-story, and is worth knowing for the triumphant struggle which it makes for existence, and also for the commercial importance which, at an early date, it seems destined to have. Perhaps its most interesting and advantageous characteristic is its habit of holding or hoarding its seed-harvests.

Lodge-pole is also variously called Tamarack, Murray, and Two-leaved Pine. Its yellow-green needles are in twos, and are from one to three inches in length. Its cones are about one inch in diameter at the base and from one to two inches long. Its light-gray or cinnamon-gray bark is thin and scaly.

In a typical lodge-pole forest the trees, or poles, stand closely together and all are of the same age and of even size. Seedlings and saplings are not seen in an old forest. This forest covers the mountains for miles, growing in moist, dry, and stony places, claims all slopes, has an altitudinal range of four thousand feet, and almost entirely excludes all other species from its borders.

The hoarding habit of this tree, the service rendered it by forest fires, the lightness of the seeds and the readiness with which they germinate on dry or burned-over areas, its ability to grow in a variety of soils and climates, together with its capacity to thrive in the full glare of the sun, — all these are factors which make this tree interesting, and which enable it, despite the most dangerous forest enemy, fire, to increase and multiply and extend its domains.

During the last fifty years this aggressive, indomitable tree has enormously extended its area, and John Muir is of the opinion that, "as fires are multiplied and the mountains become drier, this wonderful lodge-pole pine bids fair to obtain possession of nearly all the forest ground in the West." Its geographical range is along the Rocky Mountains from Alaska to New Mexico, and on

A TYPICAL LODGE-POLE FOREST

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the Pacific coast forests of it are, in places, found from sea-level to an altitude of eleven thousand feet. On the Rockies it flourishes between the altitudes of seven thousand and ten thousand feet. It is largely represented in the forests of Colorado, Utah, Idaho, and Montana, and it has extensive areas in Oregon and Washington. It is the most numerous tree in Wyoming, occupying in Yellowstone Park a larger area than all other trees combined, while in California it forms the bulk of the alpine forests.

The lodge-pole readily adapts itself to the most diverse soil and conditions, but it thrives best where there is considerable moisture. The roots accommodate themselves to shallow soil, and thrive in it.

This tree begins to bear fruit at an early age, sometimes when only eight years old, and usually produces large quantities of cones annually. The cones sometimes open and liberate the seeds as soon as they are ripe, but commonly they remain on the tree for years, with their seeds carefully sealed and protected beneath the scales. So far as I have observed, the trees on the driest soil cling longest to their seeds. For an old lodge-pole to have on its limbs twenty crops of unopened cones is not uncommon. Neither is it uncommon to see an extensive lodge-pole forest each tree of which has upon it several hundred, and many of the trees a few thousand, cones, and in each cone a few mature seeds. Most of these seeds will never have a chance to make a start in life except they be liberated by fire. In fact, most lodge-pole seeds are liberated by fire. The reproduction of this pine is so interwoven with the effects of the forest fires that one may safely say that most of the lodge-pole forests and the increasing lodge-pole areas are the result of forest fires.

Every lodge-pole forest is a fire-trap. The thin, scaly, pitchy bark and the live resiny needles on the tree, as well as those on the ground, are very inflammable, and fires probably sweep a lodge-pole forest more frequently than any other in America. When this forest is in a sapling stage, it is very likely to be burned to ashes. If, however, the trees are beyond the sapling stage, the fire probably will consume the needles, burn some of the bark away, and leave the tree, together with its numerous seed-filled cones, unconsumed. As a rule, the fire so heats the cones that most of them open and release their seeds a few hours, or a few days, after the fire. If the area burned over is a large one, the fire loosens the clasp of the cone-scales and millions of lodge-pole seeds are released to be sown by the great eternal seed-sower, the wind. These seeds are thickly scattered, and as they germinate readily in the mineral soil, enormous numbers of them sprout and begin to struggle for existence. I once counted 84,322 young trees on an acre.

The trees often stand as thick as wheat in a field and exclude all other species. Their growth is slow and mostly upright. They early become delicate miniature poles, and often, at the age of twenty-five or thirty years, good fishing-poles. In their crowded condition, the competition is deadly. Hundreds annually perish, but this tree clings tenaciously to life, and starving it to death is not easy. In the summer of 1895 I counted 24,271 thirty-year-old lodge-poles upon an acre. Ten years later, 19,040 of these were alive. It is possible that eighty thousand, or even one hundred thousand, seedlings started upon this acre. Sometimes more than half a century is required for the making of good poles.

On the Grand River in Colorado I once measured a number of poles that averaged two inches in diameter at the ground and one and one half inches fifteen feet above it. These poles averaged forty feet high and were sixty-seven years of age. Others of my notes read: "9728 trees upon an acre. They were one hundred and three years of age, two to six inches in diameter, four and a half feet from the ground, and from thirty to sixty feet high, at an altitude of 8700 feet. Soil and moisture conditions were excellent. On another acre there were 4126 trees one hundred and fifty-four years old, together with eleven young Engelmann spruces and one *Pinus flexilis* and eight Douglas firs. The accumulation of duff, mostly needles, averaged eight inches deep, and, with the exception of one bunch of kinnikinick, there was neither grass nor weed, and only tiny, thinly scattered sun-gold reached the brown matted floor."

After self-thinning has gone on for a hundred years or so, the ranks have been so thinned that there are openings sufficiently large to allow other species a chance to come in. By this time, too, there is sufficient humus on the floor to allow the seeds of many other species to germinate. Lodge-pole thus colonizes barren places, holds them for a time, and so changes them that the very species dispossessed by fire may regain the lost territory. Roughly, the lodge-pole will hold the ground exclusively from seventy-five to one hundred and fifty years, then the invading trees will come triumphantly in and, during the next century and a half, will so increase and multiply that they will almost exclude the lodge-pole. Thus Engelmann spruce and Douglas fir are now growing where lodge-pole flourished, but let fire destroy this forest and lodge-pole will again claim the territory, hold it against all comers for a century or two, and then slowly give way to or be displaced by the spruces and firs.

The interesting characteristic of holding its cones and hoarding seeds often results in the cones being overgrown and embedded in the trunk or the limbs of the trees. As the cones hug closely the trunk or the limbs, it is not uncommon for the saw, when laying open a log at the mill, to reveal a number of cones embedded there. I have in my cabin a sixteen-foot plank that is two inches in diameter and six inches wide, which came out of a lodge-pole tree. Embedded in this are more than a score of cones. Probably most of these cones were of the first crop which the tree produced, for they clung along the trunk of the tree and grew there when it was about an inch and a quarter in diameter. The section upon which these cones grew was between fifteen and twenty-five feet from the ground.

The seeds of most conifers need vegetable mould, litter, or vegetation cover of some kind in which to germinate, and then shade for a time in which to grow. These requirements so needed by other conifer seeds and seedlings are detrimental to the lodge-pole. If its seeds fall on areas lightly covered with low huckleberry vines, but few of them will germinate. A lodge-pole seed that germinates in the shade is doomed. It must have sunlight or die. In the ashes of a forest fire, in the full glare of the sun, the seeds of the lodge-pole germinate, grow, and flourish.

Wind is the chief agency which enables the seeds to migrate. The seeds are light, and I know of one instance where an isolated tree on a plateau managed to scatter its seeds by the aid of the wind over a circular area fifty acres in extent, though a few acres is all that is reached by the average tree. Sometimes the wind scatters the seeds unevenly. If most of the seeds are released in one day, and the wind this day prevails from the same quarter, the seeds will take but one course from the tree; while changing winds may scatter them quite evenly all around the tree.

A camping party built a fire against a lone lodge-pole. The tree was killed and suffered a loss of its needles from the fire. Four years later, a long green pennant, tattered at the end and formed of lodge-pole seedlings, showed on the mountain-side. This pennant began at the tree and streamed out more than seven hundred feet. Its width varied from ten to fifty feet.

The action of a fire in a lodge-pole forest is varied. If the forest be an old one, even with much rubbish on the ground the heat is not so intense as in a young growth. Where trees are scattered the flames crawl from tree to tree, the needles of which ignite like flash-powder and make beautiful rose-purple flames. At night fires of this kind furnish rare fireworks. Each tree makes a fountain of flame, after which, for a moment, every needle shines like incandescent silver, while exquisite light columns of ashen green smoke float above. The hottest fire I ever experienced was made by the burning of a thirty-eight-year lodge-pole forest. In this forest the poles stood more than thirty feet high, and were about fifteen thousand to an acre. They stood among masses of fallen trees, the remains of a spruce forest that had been killed by the same fire which had given this lodge-pole forest a chance to spring up. Several thousand acres were burned, and for a brief time the fire traveled swiftly. I saw it roll blazing over one mountain-side at a speed of more than sixty miles an hour. It was intensely hot, and in a surprisingly short time the flames had burned every log, stump, and tree to ashes. Several hundred acres were swept absolutely bare of trees, living and dead, and the roots too were burned far into the ground.

Several beetles prey upon the lodge-pole, and in some localities the porcupine feeds off its inner bark. It is also made use of by man. The wood is light, not strong, with a straight, rather coarse grain. It is of a light yellow to nearly white, or pinkish white, soft, and easily worked. In the West it is extensively used for lumber, fencing, fuel, and log houses, and millions of lodge-pole railroad-ties are annually put to use.

Most lodge-poles grow in crowded ranks, and slow growth is the result, but it is naturally a comparatively rapid grower. In good, moist soil, uncrowded, it rapidly builds upward and outward. I have more than a score of records that show that it has made a quarter of an inch diameter growth annually, together with an upright growth of more than twelve inches, and also several notes which show where trees standing in favorable conditions have made half an inch diameter growth annually. This fact of its rapid growth, together with other valuable characteristics and qualities of the tree, may lead it to be selected by the government for the reforestation of millions of acres of denuded areas in the West. In many places on the Rockies it would, if given a chance, make commercial timber in from thirty to sixty years.

I examined a lodge-pole in the Medicine Bow Mountains that was scarred by fire. It was two hundred and fourteen years of age. It took one hundred and seventy-eight years for it to make five inches of diameter growth. In the one hundred and seventy-eighth ring of annual growth there was a fire-scar, and during the next thirty-six years it put on five more inches of growth. It is probable, therefore, that the fire destroyed the neighboring trees, which had dwarfed and starved it and thus held it in check. I know of scores of cases where lodge-poles grew much more rapidly, though badly fire-scarred, after fires had removed their hampering competitors.

There are millions of acres of young lodge-pole forests in the West. They are almost as impenetrable as canebrakes. It would greatly increase the rate of growth if these trees were thinned, but it is probable that this will not be done for many years. Meantime, if these forests be protected from fire, they will be excellent water-conservers. When the snows or the rains fall into the lodge-pole thickets, they are beyond the reach of the extra dry winds. If they are protected, the water-supply of the West will be protected; and if they are destroyed, the winds will evaporate most of the precipitation that falls upon their areas.

I do not know of any tree that better adjusts itself to circumstances, or that struggles more bravely or successfully. I am hopeful that before many years the school-children of America will be well acquainted with the Lodge-Pole Pine, and I feel that its interesting ways, its struggles, and its importance will, before long, be appreciated and win a larger place in our literature and also in our hearts.

Rocky Mountain Forests

Rocky Mountain Forests

It is stirring to stand at the feet of the Rocky Mountains and look upward and far away over the broken strata that pile and terrace higher and higher, until, at a distance of twenty-five or thirty miles, they stand a shattered and snowy horizon against the blue. The view is an inspiring one from the base, but it gives no idea that this mountain array is a magnificent wild hanging-garden. Across the terraced and verdure-plumed garden the eternal snows send their clear and constant streams, to leap in white cascades between crowning crags and pines. Upon the upper slopes of this garden are many mirrored lakes, ferny, flowery glens, purple forests, and crag-piled meadows.

If any one were to start at the foothills in Colorado, where one of the clear streams comes sweeping out of the mountains to go quietly across the wide, wide plains, and from this starting-place climb to the crest of this terraced land of crags, pines, ferns, and flowers, he would, in so doing, go through many life-zones and see numerous standing and moving life-forms, all struggling, yet seemingly all contented with life and the scenes wherein they live and struggle.

The broad-leaf cottonwood, which has accompanied the streams across the plains, stops at the foothills, and along the river in the foothills the narrow-leaf cottonwood (*Populus angustifolia*) crowds the water's edge, here and there mingling with red-fruited hawthorns and wild plums (*Prunus Americana*). A short distance from the stream the sumac stands brilliant in the autumn, and a little farther away are clumps of greasewood and sagebrush and an occasional spread of juniper. Here and there are some forlorn-looking red cedars and a widely scattered sprinkling of stunted yellow pines (*Pinus scopulorum*).

At an altitude of six thousand feet the yellow pine acquires true tree dignity and begins to mass itself into forests. When seen from a distance its appearance suggests the oak. It seems a trifle rigid, appears ready to meet emergencies, has a look of the heroic, and carries more character than any other tree on the Rockies. Though a slender and small-limbed tree in youth, after forty or fifty years it changes slowly and becomes stocky, strong-limbed, and rounded at the top. Lightning, wind, and snow break or distort its upper limbs so that most of these veteran pines show a picturesquely broken top, with a towering dead limb or two among the green ones. Its needles are in bundles of both twos and threes, and they vary from three to eight inches in length. The tree is rich in resin, and a walk through its groves on an autumn day, when the sun shines bright on its clean golden columns and brings out its aroma, is a walk full of contentment and charm. The bark is fluted and blackish-gray in youth, and it breaks up into irregular plates, which on old trees frequently are five inches or more in thickness. This bark gives the tree excellent fire-protection.

The yellow pine is one of the best fire-fighters and lives long. I have seen many of the pines that were from sixty to ninety feet high, with a diameter of from three to five feet. They were aged from two hundred and fifty to six hundred years. Most of the old ones have lived through several fires. I dissected a fallen veteran that grew on the St. Vrain watershed, at an altitude of eight thousand feet, that was eight-five feet high and fifty-one inches in diameter five feet from the ground. It showed six hundred and seventy-nine annual rings. During the first three hundred years of its life it averaged an inch of diameter growth every ten years. It had been through many forest fires and showed large fire-scars. One of these it received at the age of three hundred and thirty-nine years. It carried another scar which it received two hundred and sixteen years before its death; another which it received in 1830; and a fourth which it received fourteen years before it blew over in the autumn of 1892. All of these fire-scars were on the same quarter of the tree. All were on that part of the tree which overlooked the down-sloping hillside.

Forest fires, where there is opportunity, sweep up the mountain-side against the lower side of the trees. The lower side is thus often scarred while the opposite side is scarcely injured; but wind blowing down the gulch at the time of each fire may have directed the flames against the lower side of this tree. In many places clusters of young trees were growing close to the lower side of the old trees, and were enabled to grow there by light that came in from the side. It may be that the heat from one of the blazing clusters scarred this old pine; then another young cluster may have grown, to be in time also consumed. But these scars may have resulted, wholly or in part, from other causes.

Yellow pine claims the major portion of the well-drained slopes, except those that are northerly, in the middle mountain-zone up to the lower lodge-pole margin. A few groves are found higher than nine thousand feet. Douglas spruce covers many of the northerly slopes that lie between six thousand and nine thousand feet.

The regularity of tree-distribution over the mountains is to me a never-failing source of interest. Though the various species of trees appear to be growing almost at random, yet each species shows a decided preference for peculiar altitude, soil, temperature, and moisture conditions. It is an interesting demonstration of tree adaptability to follow a stream which comes out of the west, in the middle mountain-zone, and observe how unlike the trees are which thrive on opposite sides. On the southerly slopes that come down to the water is an open forest of yellow pine, and on the opposite side, the south bank, a dense forest of Douglas spruce. If one be told the altitude, the slope, and the moisture conditions of a place on the Rockies, he should, if acquainted with the Rockies, be able to name the kinds of trees growing there. Some trees grow only in moist places, others only in dry places, some never below or above a certain altitude. Indeed, so regular is the tree-distribution over the Rockies that I feel certain, if I were to awaken from a Rip Van Winkle sleep in the forests on the middle or upper slopes of these mountains, I could, after examining a few of the trees around me, tell the points of the compass, the altitude above sea-level, and the season of the year.

At an altitude of about sixty-five hundred feet cottonwood, which has accompanied the streams from the foothills, begins to be displaced by aspen. The aspen (*Populus tremuloides*) is found growing in groups and groves from this altitude

ASPENS

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up to timber-line, usually in the moister places. To me the aspen is almost a classic tree, and I have met it in so many places that I regard it almost as an old friend. It probably rivals the juniper in being the most widely distributed tree on the North American continent. It also vies with the lodge-pole pine in quickness of taking possession of burned-over areas. Let a moist place be burned over and the aspen will quickly take possession, and soon establish conditions which will allow conifers to return. This the conifers do, and in a very short time smother the aspens that made it possible for them to start in life. The good nursery work of aspens is restricted pretty closely to damp places.

Besides being a useful tree, the bare-legged little aspen with its restless and childlike ways is a tree that it is good to know. When alone, these little trees seem lonely and sometimes to tremble as though just a little afraid in this big strange world. But generally the aspen is not alone. Usually you find a number of little aspens playing together, with their leaves shaking, jostling, and jumping, — moving all the time. If you go near a group and stop to watch them, they may, for an instant, pause to glance at you, then turn to romp more merrily than before. And they have other childlike ways besides bare legs and activity. On some summer day, if you wish to find these little trees, look for them where you would for your own child, — wading the muddiest place to be found. They like to play in the swamps, and may often be seen in a line alongside a brook with toes in the water, as though looking for the deepest place before wading in.

One day I came across a party of merry little aspens who were in a circle around a grand old pine, as though using the pine for a maypole to dance around. It was in autumn, and each little aspen wore its gayest colors. Some were in gowns of new-made cloth-of-gold. The grizzled old pine, like an old man in the autumn of his life, looked down as though honored and pleased with the happy little ones who seemed so full of joy. I watched them for a time and went on across the mountains; but I have long believed in fairies, so the next day I went back to see this fairyland and found the dear little aspens still shaking their golden leaves, while the old pine stood still in the sunlight.

Along the streams, between the altitudes of sixty-five hundred and eighty-five hundred feet, one finds the Colorado blue or silver spruce. This tree grows in twos or threes, occasionally forming a small grove. Usually it is found growing near a river or brook, standing closely to a golden-lichened crag, in surroundings which emphasize its beauty of form and color. With its fluffy silver-tipped robe and its garlands of cones it is the handsomest tree on the Rockies. It is the queen of these wild gardens. Beginning at the altitude where the silver spruce ceases is the beautiful balsam fir (*Abies lasiocarpa*). The balsam fir is generally found in company with the alders or the silver spruce near a brook. It is strikingly symmetrical and often forms a perfect slender cone. The balsam fir and the silver spruce are the evergreen poems of the wild. They get into one's heart like the hollyhock. Several years ago the school-children of Colorado selected by vote a State flower and a State tree. Although more than fifty flowers received votes, two thirds of all the votes went to the Rocky Mountain columbine. When it came to selecting a tree, every vote was cast for the silver spruce.

Edwinia, with its attractive waxy white flowers, and potentilla, with bloom of gold, are shrubs which lend a charm to much of the mountain-section. Black birch and alder trim many of the streams, and the mountain maple is thinly scattered from the foothills to nine thousand feet altitude. Wild roses are frequently found near the maple, and gooseberry bushes fringe many a brook. Huckleberries flourish on the timbered slopes, and kinnikinick gladdens many a gravelly stretch or slope.

Between the altitudes of eight thousand and ten thousand feet there are extensive forests of the indomitable lodge-pole pine. This borders even more extensive forests of Engelmann spruce. Lodge-pole touches timber-line in a few places, and Engelmann spruce climbs up to it in every cañon or moist depression. Along with these, at timber-line, are *flexilis* pine, balsam fir, arctic willow, dwarf black birch, and the restless little aspen. All timber-line trees are dwarfed and most

A GROVE OF SILVER SPRUCE

of them distorted. Conditions at timber-line are severe, but the presence, in places, of young trees farthest up the slopes suggests that these severe conditions may be developing hardier trees than any that now are growing on this forest frontier. If this be true, then timber-line on the Rockies is yet to gain a higher limit.

Since the day of "Pike's Peak or bust," fires have swept over more than half of the primeval forest area in Colorado. Some years ago, while making special efforts to prevent forest fires from starting, I endeavored to find out the cause of these fires. I regretfully found that most of them were the result of carelessness, and I also made a note to the effect that there are few worse things to be guilty of than carelessly setting fire to a forest. Most of these forest fires had their origin from camp-fires which the departing campers had left unextinguished. There were sixteen fires in one summer, which I attributed to the following causes: campers, nine; cigar, one; lightning, one; locomotive, one; stockmen, two; sheep-herders, one; and sawmill, one.

Fires have made the Rocky Mountains still more rocky. In many places the fires burn their way to solid rock. In other places the humus, or vegetable mould, is partly consumed by fire, and the remainder is in a short time blown away by wind or washed away by water. Fires often leave only blackened granite rock behind, so that in many places they have not only consumed the forests, but also the food upon which the new forests might have fed. Many areas where splendid forests grew, after being fire-swept, show only barren granite. As some of the granite on the Rockies disintegrates slowly, it will probably require several hundred years for Nature to resoil and reforest some of these fire-scarred places. However, upon thousands of acres of the Rockies millions of young trees are just beginning to grow, and if these trees be protected from fire, a forest will early result.

I never see a little tree bursting from the earth, peeping confidently up among the withered leaves, without wondering how long it will live or what trials or triumphs it will have. I always hope that it will find life worth living, and that it will live long to better and to beautify the earth. I hope it will love the blue sky and the white clouds passing by. I trust it will welcome all seasons and ever join merrily in the music, the motion, and the movement of the elemental dance with the winds. I hope it will live with rapture in the flower-opening days of spring and also enjoy the quiet summer rain. I hope it will be a home for the birds and hear their low, sweet mating-songs. I trust that when comes the golden peace of autumn days, it will be ready with fruited boughs for the life to come. I never fail to hope that if this tree is cut down, it may be used for a flagpole to keep our glorious banner in the blue above, or that it may be built into a cottage where love will abide; or if it must be burnt, that it will blaze on the hearthstone in a home where children play in the firelight on the floor.

In many places the Rockies rise more than three thousand feet above the heights where live the highest struggling trees at timber-line, but these steep alpine slopes are not bare. The rocks are tinted with lichens. In places are miles of grassy slopes and miniature meadows, covered with coarse sedges and bright tender flowers. Among the shrubs the *Betula glandulosa* is probably commonest, while *Dasiphora fruticosa* and *Salix chlorophylla* are next in prominence. Here and there you will see the golden gaillardia, the silver and blue columbines, splendid arrays of sedum, many marsh-marigolds, lungworts, paint-brushes of red and white and yellow green, beds of purple primroses, sprinklings of alpine gentians, many clusters of live-forever, bunches of honey-smelling valerian, with here and there standing the tall stalks of fraseria, or monument-plant. There are hundreds of other varieties of plants, and the region above timber-line holds many treasures that are dear to those who love flowers and who appreciate them especially where cold and snow keep them tiny.

Above timber-line are many bright blossoms that are familiar to us, but dwarfed to small size. One needs to get down and lie upon the ground and search carefully with a magnifying-glass, or he will overlook many of these brave bright but tiny flowers. Here are blue gentians less than half an inch in height, bell-flowers only a trifle higher, and alpine willows so tiny that their catkins touch the ground. One of the most attractive and beautiful of these alpine flowers is the blue honeysuckle or polemonium, about an inch in height. I have found it on mountain-tops, in its fresh, clear coloring, at an altitude of fourteen thousand feet, as serene as the sky above it.

A climb up the Rockies will develop a love for nature, strengthen one's appreciation of the beautiful world outdoors, and put one in tune with the Infinite. It will inspire one with the feeling that the Rockies have a rare mountain wealth of their own. They are not to be compared with the Selkirks or the Alps or any other unlike range of mountains. The Rockies are not a type, but an individuality, singularly rich in mountain scenes which stir one's blood and which strengthen and sweeten life.

Besieged by Bears

Besieged by Bears

Two old prospectors, Sullivan and Jason, once took me in for the night, and after supper they related a number of interesting experiences. Among these tales was one of the best bear-stories I have ever heard. The story was told in the graphic, earnest, realistic style so often possessed by those who have lived strong, stirring lives among crags and pines. Although twenty years had gone by, these prospectors still had a vivid recollection of that lively night when they were besieged by three bears, and in recounting the experience they mingled many good word-pictures of bear behavior with their exciting and amusing story. "This happened to us," said Sullivan, "in spite of the fact that we were minding our own business and had never hunted bears."

The siege occurred at their log cabin during the spring of 1884. They were prospecting in Geneva Park, where they had been all winter, driving a tunnel. They were so nearly out of supplies that they could not wait for snowdrifts to melt out of the trail. Provisions must be had, and Sullivan thought that, by allowing twice the usual time, he could make his way down through the drifts and get back to the cabin with them. So one morning, after telling Jason that he would be back the next evening, he took their burro and set off down the mountain. On the way home next day Sullivan had much difficulty in getting the loaded burro through the snowdrifts, and when within a mile of the cabin, they stuck fast. Sullivan unpacked and rolled the burro out of the snow, and was busily repacking, when the animal's uneasiness made him look round.

In the edge of the woods, only a short distance away, were three bears, apparently a mother and her two well-grown children. They were sniffing the air eagerly and appeared somewhat excited. The old bear would rise on her hind paws, sniff the air, then drop back to the ground. She kept her nose pointed toward Sullivan, but did not appear to look at him. The smaller bears moved restlessly about; they would walk a few steps in advance, stand erect, draw their fore paws close

OURAY, COLORADO

A typical mining town

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to their breasts, and sniff, sniff, sniff the air, upward and in all directions before them. Then they would slowly back up to the old bear. They all seemed very good-natured.

When Sullivan was unpacking the burro, the wrapping had come off two hams which were among the supplies, and the wind had carried the delicious aroma to the bears, who were just out of their winter dens after weeks of fasting. Of course, sugar-cured hams smelled good to them. Sullivan repacked the burro and went on. The bears quietly eyed him for some distance. At a turn in the trail he looked back and saw the bears clawing and smelling the snow on which the provisions had lain while he was getting the burro out of the snowdrift. He went on to the cabin, had supper, and forgot the bears.

The log cabin in which he and Jason lived was a small one; it had a door in the side and a small window in one end. The roof was made of a layer of poles thickly covered with earth. A large shepherd-dog often shared the cabin with the prospectors. He was a playful fellow, and Sullivan often romped with him. Near their cabin were some vacant cabins of other prospectors, who had "gone out for the winter" and were not yet back for summer prospecting.

The evening was mild, and as soon as supper was over Sullivan filled his pipe, opened the door, and sat down on the edge of the bed for a smoke, while Jason washed the dishes. He had taken only a few pulls at his pipe when there was a rattling at the window. Thinking the dog was outside, Sullivan called, "Why don't you go round to the door?" This invitation was followed by a momentary silence, then smash! a piece of sash and fragments of window-glass flew past Sullivan and rattled on the floor. He jumped to his feet. In the dim candle-light he saw a bear's head coming in through the window. He threw his pipe of burning tobacco into the bear's face and eyes, and then grabbed for some steel drills which lay in the corner on the floor. The earth roof had leaked, and the drills were ice-covered and frozen fast to the floor.

While Sullivan was dislodging the drills, Jason began to bombard the bear vigorously with plates from the table. The bear backed out; she was looking for food, not clean plates. However, the instant she was outside, she accepted Sullivan's invitation and went round to the door! And she came for it with a rush! Both Sullivan and Jason jumped to close the door. They were not quick enough, and instead of one bear there were three! The entire family had accepted the invitation, and all were trying to come in at once!

When Sullivan and Jason threw their weight against the door it slammed against the big bear's nose, — a very sensitive spot. She gave a savage growl. Apparently she blamed the two other bears either for hurting her nose or for being in the way. At any rate, a row started; halfway in the door the bears began to fight; for a few seconds it seemed as if all the bears would roll inside. Sullivan and Jason pushed against the door with all their might, trying to close it. During the struggle the bears rolled outside and the door went shut with a bang. The heavy securing cross-bar was quickly put into place; but not a moment too soon, for an instant later the old bear gave a furious growl and flung herself against the door, making it fairly crack; it seemed as if the door would be broken in. Sullivan and Jason hurriedly knocked their slab bed to pieces and used the slats and heavy sides to prop and strengthen the door. The bears kept surging and clawing at the door, and while the prospectors were spiking the braces against it and giving their entire attention to it, they suddenly felt the cabin shake and heard the logs strain and give. They started back, to see the big bear struggling in the window. Only the smallness of the window had prevented the bear from getting in unnoticed, and surprising them while they were bracing the door. The window was so small that the bear in trying to get in had almost wedged fast. With hind paws on the ground, fore paws on the window-sill, and shoulders against the log over the window, the big bear was in a position to exert all her enormous strength. Her efforts to get in sprung the logs and gave the cabin the shake which warned.

Sullivan grabbed one of the steel drills and dealt the bear a terrible blow on the head. She gave a growl of mingled pain and fury as she freed herself from the window. Outside she backed off growling.

For a little while things were calmer. Sullivan and Jason, drills in hand, stood guard at the window. After some snarling in front of the window the bears went round to the door. They clawed the door a few times and then began to dig under it. "They are tunneling in for us," said Sullivan. "They want those hams; but they won't get them."

After a time the bears quit digging and started away, occasionally stopping to look hesitatingly back. It was almost eleven o'clock, and the full moon shone splendidly through the pines. The prospectors hoped that the bears were gone for good. There was an old rifle in the cabin, but there were no cartridges, for Sullivan and Jason never hunted and rarely had occasion to fire a gun. But, fearing that the animals might return, Sullivan concluded to go to one of the vacant cabins for a loaded Winchester which he knew to be there.

As soon as the bears disappeared, he crawled out of the window and looked cautiously around; then he made a run for the vacant cabin. The bears heard him running, and when he had nearly reached the cabin, they came round the corner of it to see what was the matter. He was up a pine tree in an instant. After a few growls the bears moved off and disappeared behind a vacant cabin. As they had gone behind the cabin which contained the loaded gun, Sullivan thought it would be dangerous to try to make the cabin, for if the door should be swelled fast, the bears would surely get him. Waiting until he thought it safe to return, he dropped to the ground and made a dash for his own cabin. The bears heard him and again gave chase, with the evident intention of getting even for all their annoyances. It was only a short distance to his cabin, but the bears were at his heels when he dived in through the broken window.

A bundle of old newspapers was then set on fire and thrown among the bears, to scare them away. There was some snarling, until one of the young bears with a stroke of a fore paw scattered the blazing papers in all directions; then the bears walked round the cabin-corner out of sight and remained quiet for several minutes.

Just as Jason was saying, "I hope they are gone for good," there came a thump on the roof which told the prospectors that the bears were still intent on the hams. The bears began to claw the earth off the roof. If they were allowed to continue, they would soon clear off the earth and would then have a chance to tear out the poles. With a few poles torn out, the bears would tumble into the cabin, or perhaps their combined weight might cause the roof to give way and drop them into the cabin. Something had to be done to stop their clawing and if possible get them off the roof. Bundles of hay were taken out of the bed mattress. From time to time Sullivan would set fire to one of these bundles, lean far out through the window, and throw the blazing hay upon the roof among the bears. So long as he kept these fireworks going, the bears did not dig; but they stayed on the roof and became furiously angry. The supply of hay did not last long, and as soon as the annoyance from the bundles of fire ceased, the bears attacked the roof again with renewed vigor.

Then it was decided to prod the bears with red-hot drills thrust up between the poles of the roof. As there was no firewood in the cabin, and as fuel was necessary in order to heat the drills, a part of the floor was torn up for that purpose.

The young bears soon found hot drills too warm for them and scrambled or fell off the roof. But the old one persisted. In a little while she had clawed off a large patch of earth and was tearing the poles with her teeth.

The hams had been hung up on the wall in the end of the cabin; the old bear was tearing just above them. Jason threw the hams on the floor and wanted to throw them out of the window. He thought that the bears would leave contented if they had them. Sullivan thought differently; he said that it would take six hams apiece to satisfy the bears, and that two hams would be only a taste which would make the bears more reckless than ever. The hams stayed in the cabin.

The old bear had torn some of the poles in two and was madly tearing and biting at others. Sullivan was short and so were the drills. To get within easier reach, he placed the table almost under the gnawing bear, sprang upon it, and called to Jason for a red-hot drill. Jason was about to hand him one when he noticed a small bear climbing in at the window, and, taking the drill with him, he sprang over to beat the bear back. Sullivan jumped down to the fire for a drill, and in climbing back on the table he looked up at the gnawed hole and received a shower of dirt in his face and eyes. This made him flinch and he lost his balance and upset the table. He quickly straightened the table and sprang upon it, drill in hand. The old bear had a paw and arm thrust down through the hole between the poles. With a blind stroke she struck the drill and flung it and Sullivan from the table. He shouted to Jason for help, but Jason, with both young bears trying to get in at the window at once, was striking right and left. He had bears and troubles of his own and did not heed Sullivan's call. The old bear thrust her head down through the hole and seemed about to fall in, when Sullivan in desperation grabbed both hams and threw them out of the window.

The young bears at once set up a row over the hams, and the old bear, hearing the fight, jumped off the roof and soon had a ham in her mouth.

While the bears were fighting and eating, Sullivan and Jason tore up the remainder of the floor and barricaded the window. With both door and window closed, they could give their attention to the roof. All the drills were heated, and both stood ready to make it hot for the bears when they should again climb on the roof. But the bears did not return to the roof. After eating the last morsel of the hams they walked round to the cabin door, scratched it gently, and then became quiet. They had lain down by the door.

It was two o'clock in the morning. The inside of the cabin was in utter confusion. The floor was strewn with wreckage; bedding, drills, broken boards, broken plates, and hay were scattered about. Sullivan gazed at the chaos and remarked that it looked like poor housekeeping. But he was tired, and, asking Jason to keep watch for a while, he lay down on the blankets and was soon asleep.

Toward daylight the bears got up and walked a few times round the cabin. On each round they clawed at the door, as though to tell Sullivan that they were there, ready for his hospitality. They whined a little, half good-naturedly, but no one admitted them, and finally, just before sunrise, they took their departure and went leisurely smelling their way down the trail.

Mountain Parks and Camp-Fires

Mountain Parks and Camp-Fires

The Rockies of Colorado cross the State from north to south in two ranges that are roughly parallel and from thirty to one hundred miles apart. There are a number of secondary ranges in the State that are just as marked, as high, and as interesting as the main ranges, and that are in every way comparable with them except in area. The bases of most of these ranges are from ten to sixty miles across. The lowlands from which these mountains rise are from five to six thousand feet above sea-level, and the mountain-summits are from eleven thousand to thirteen thousand feet above the tides. In the entire mountain area of the State there are more than fifty peaks that are upward of fourteen thousand feet in height. Some of these mountains are rounded, undulating, or table-topped, but for the most part the higher slopes and culminating summits are broken and angular. Altogether, the Rocky Mountain area in Colorado presents a delightful diversity of parks, peaks, forests, lakes, streams, cañons, slopes, crags, and glades.

On all of the higher summits are records of the ice age. In many places glaciated rocks still retain the polish given them by the Ice King. Such rocks, as well as gigantic moraines in an excellent state of preservation, extend from altitudes of twelve or thirteen thousand feet down to eight thousand, and in places as low as seven thousand feet. Some of the moraines are but enormous embankments a few hundred feet high and a mile or so in length. Many of these are so raw, bold, and bare, they look as if they had been completed or uncovered within the last year. Most of these moraines, however, especially those below timber-line, are well forested. No one knows just how old they are, but, geologically speaking, they are new, and in all probability were made during the last great ice epoch, or since that time. Among the impressive records of the ages that are carried by these mountains, those made by the Ice King probably stand first in appealing strangely and strongly to the imagination.

All the Rocky Mountain lakes are glacier lakes. There are more than a thousand of these. The basins of the majority of them were excavated by ice from solid rock. Only a few of them have more than forty acres of area, and, with the exception of a very small number, they are situated well up on the shoulders of the mountains and between the altitudes of eleven thousand and twelve thousand feet. The lower and middle slopes of the Rockies are without lakes.

The lower third of the mountains, that is, the foothill section, is only tree-dotted. But the middle portion, that part which lies between the altitudes of eight thousand and eleven thousand feet, is covered by a heavy forest in which lodgepole pine, Engelmann spruce, and Douglas spruce predominate. Fire has made ruinous inroads into the primeval forest which grew here.

A large portion of the summit-slopes of the mountains is made up of almost barren rock, in old moraines, glaciated slopes, or broken crags, granite predominating. These rocks are well tinted with lichen, but they present a barren appearance. In places above the altitude of eleven thousand feet the mountains are covered with a profuse array of alpine vegetation. This is especially true of the wet meadows or soil-covered sections that are continually watered by melting snows.

In the neighborhood of a snowdrift, at an altitude of twelve thousand feet, I one day gathered in a small area one hundred and forty-two varieties of plants. Areas of "eternal snows," though numerous, are small, and with few exceptions, above twelve thousand feet. Here and there above timber-line are many small areas of moorland, which, both in appearance and in vegetation, seem to belong in the tundras of Siberia.

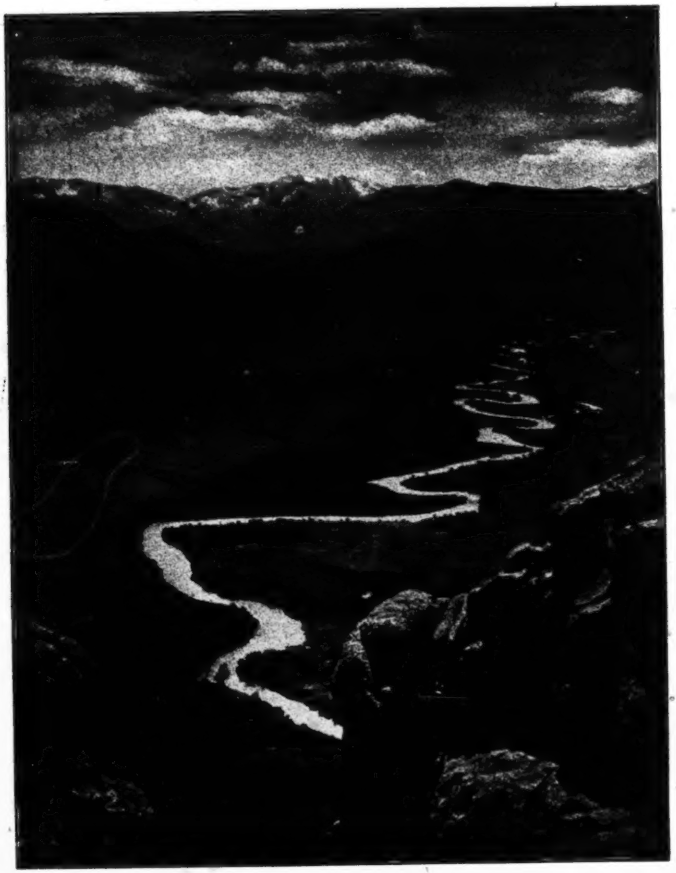
While these mountains carry nearly one hundred varieties of trees and shrubs, the more abundant kinds of trees number less than a score. These are scattered over the mountains between the altitudes of six thousand and twelve thousand feet, while, charming and enlivening the entire mountain-section, are more than a thousand varieties of wild flowers.

Bird-life is abundant on the Rockies. No State east of the Mississippi can show as great a variety as Colorado. Many species of birds well known in the East are found there, though, generally, they are in some way slightly modified. Most Rocky Mountain birds sound their notes a trifle more loudly than their Eastern relatives. Some of them are a little larger, and many of them have their colors slightly intensified.

Many of the larger animals thrive on the slopes of the Rockies. Deer are frequently seen. Bobcats, mountain lions, and foxes leave many records. In September bears find the choke-cherry bushes and, standing on their hind legs, feed eagerly on the cherries, leaves, and good-sized sections of the twigs. The ground-hog apparently manages to live well, for he seems always fat. There is that wise little fellow the coyote. He probably knows more than he is given credit for knowing, and I am glad to say for him that I believe he does man more good than harm. He is a great destroyer of meadow mice. He digs out gophers. Sometimes his meal is made upon rabbits or grasshoppers, and I have seen him feeding upon wild plums.

There are hundreds of ruins of the beaver's engineering works. Countless dams and fillings he has made. On the upper St. Vrain he still maintains his picturesque rustic home. Most of the present beaver homes are in high, secluded places, some of them at an altitude of eleven thousand feet. In midsummer, near most beaver homes one finds columbines, fringed blue gentians, orchids, and lupines blooming, while many of the ponds are green and yellow with pond-lilies.

During years of rambling I have visited and enjoyed all the celebrated parks of the Rockies, but one, which shall be nameless, is to me the loveliest of them all. The first view of it never fails to arouse the dullest traveler. From the entrance one looks down upon an irregular depression, several miles in length, a small undulating and beautiful mountain valley, framed in peaks with purple forested sides and bristling snowy grandeur. This valley is delightfully open, and has a picturesque sprinkling of pines over it, together with a few well-placed cliffs and crags. Its swift, clear, and winding brooks are fringed



ESTES PARK AND THE BIG THOMPSON RIVER
FROM THE TOP OF MT. OLYMPUS

with birch and willow. A river crosses it with many a slow and splendid fold of silver.

Not only is the park enchanting from the distance, but every one of its lakes and meadows, forests and wild gardens, has a charm and a grandeur of its own. There are lakes of many kinds. One named for the painter, now dead, who many times sketched and dreamed on its shores, is a beautiful ellipse; and its entire edge carries a purple shadow matting of the crowding forest. Its placid surface reflects peak and snow, cloud and sky, and mingling with these are the green and gold of pond-lily glory. Another lake is stowed away in an utterly wild place. It is in a rent between three granite peaks. Three thousand feet of precipice bristle above it. Its shores are strewn with wreckage from the cliffs and crags above, and this is here and there cemented together with winter's drifted snow. Miniature icebergs float upon its surface. Around it are mossy spaces, beds of sedge, and scattered alpine flowers, which soften a little the fierce aspect of this impressive scene.

On the western margin of the park is a third lake. This lake and its surroundings are of the highest alpine order. Snow-line and tree-line are just above it. Several broken and snowy peaks look down into it, and splendid spruces spire about its shores. Down to it from the heights and snows above come waters leaping in white glory. It is the centre of a scene of wild grandeur that stirs in one strange depths of elemental feeling and wonderment. Up between the domes of one of the mountains is Gem Lake. It is only a little crystal pool set in ruddy granite with a few evergreens adorning its rocky shore. So far as I know, it is the smallest area of water in the world that bears the name of lake; and it is also one of the rarest gems of the lakelet world.

The tree-distribution is most pleasing, and the groves and forests are a delight. Aged Western yellow pines are sprinkled over the open areas of the park. They have genuine character, marked individuality. Stocky and strong-limbed, their golden-brown bark broken into deep fissures and plateaus, scarred with storm and fire, they make one think and dream more than any other tree on the Rockies. By the brooks the clean and childlike aspens mingle with the willow and the alder or the handsome silver spruce. Some slopes are spread with the green fleece of massed young lodge-pole pines, and here and there are groves of Douglas spruce, far from their better home "where rolls the Oregon." The splendid and spiry Engelmann spruces climb the stern slopes eleven thousand feet above the ocean, where weird timber-line with its dwarfed and distorted trees shows the incessant line of battle between the woods and the weather.

Every season nearly one thousand varieties of beautiful wild flowers come to perfume the air and open their "bannered bosoms to the sun." Many of these are of brightest color. They crowd the streams, wave on the hills, shine in the woodland vistas, and color the snow-edge. Daisies, orchids, tiger lilies, fringed gentians, wild red roses, mariposas, Rocky Mountain columbines, harebells, and forget-me-nots adorn every space and nook.

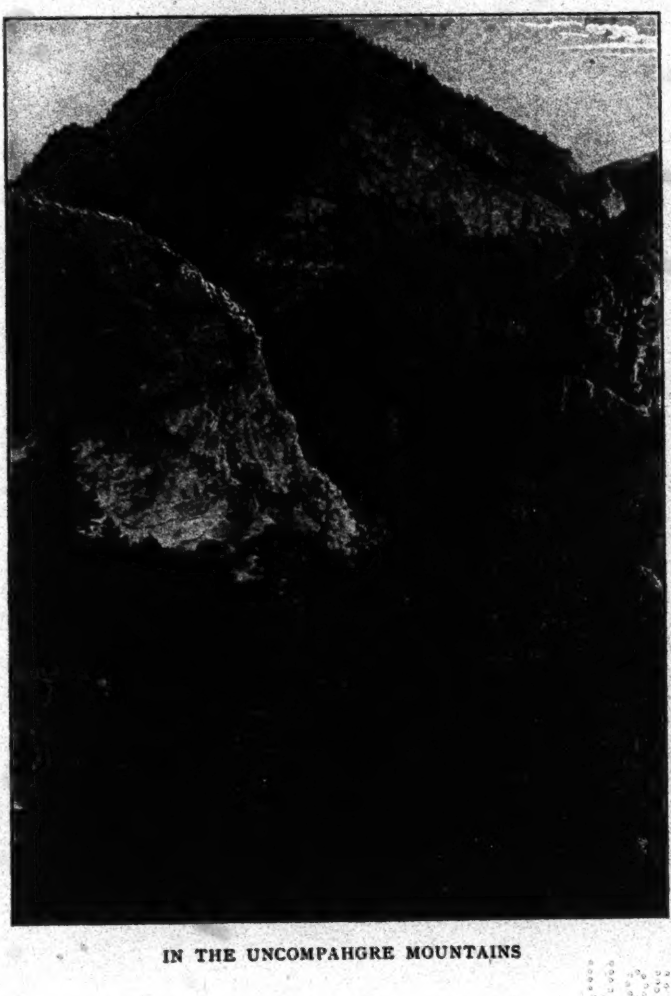
While only a few birds stay in the park the year round, there are scores of summer visitors who come here to bring up the babies, and to enliven the air with song. Eagles soar the blue, and ptarmigan, pipits, and sparrows live on the alpine moorlands. Thrushes fill the forest aisles with melody, and by the brooks the ever-joyful water-ouzel mingles its music with the song of ever-hurrying, ever-flowing waters. Among the many common birds are owls, meadowlarks, robins, wrens, magpies, bluebirds, chickadees, nuthatches, and several members of the useful woodpecker family, together with the white-throated sparrow and the willow thrush.

Speckled and rainbow trout dart in the streams. Mountain sheep climb and pose on the crags; bear, deer, and mountain lions are still occasionally seen prowling the woods or hurrying across the meadows. The wise coyote is also seen darting under cover, and is frequently heard during the night. Here among the evergreens is found that small and audacious bit of intensely interesting and animated life, the Douglas squirrel, and also one of the dearest of all small animals, the merry chipmunk. Along the brooks are a few small beaver colonies, a straggling remnant of a once numerous population. It is to be hoped that this picturesque and useful race will be allowed to extend its domain.

The park has also a glacier, a small but genuine chip of the old block, the Ice King. The glacier is well worth visiting, especially late in summer, when the winter mantle is gone from its crevasses, leaving revealed its blue-green ice and its many grottoes. It is every inch a glacier. There are other small glaciers above the Park, but these glacial remnants, though interesting, are not as imposing as the glacial records, the old works which were deposited by the Ice King. The many kinds of moraines here display his former occupation and activities. There are glaciated walls, polished surfaces, eroded basins, and numerous lateral moraines. One of the moraines is probably the largest and certainly one of the most interesting in the Rockies. It occupies about ten square miles on the eastern slope of the mountain. Above timber-line this and other moraines seem surprisingly fresh and new, as though they had been formed only a few years, but below tree-line they are forested, and the accumulation of humus upon them shows that they have long been bearers of trees.

The rugged Peak looks down over all this wild garden, and is a perpetual challenge to those who go up to the sky on mountains. It is a grand old granite peak. There are not many mountains that require more effort from the climber, and few indeed can reward him with such a far-spreading and magnificent view.

One of the most interesting and impressive localities in the Rockies lies around Mt. Wetterhorn, Mt. Coxcomb, and Uncompahgre Peak. Here I have found the birds confiding, and most wild animals so tame that it was a joy to be with them. But this was years ago, and now most of the wild animals are wilder and the birds have found that man will not bear acquaintance. Most of this region was recently embraced in the Uncompahgre National Forest. It has much for the scientist and nature-lover: the mountain-climber will find peaks to conquer and cañons to explore; the geologist will find many valuable stone manuscripts; the forester who interviews the trees will have from their tongues a story worth while; and here, too, are some of Nature's best pictures for those who revel only in the lovely and the wild.



IN THE UNCOMPAHGRE MOUNTAINS

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It is a strikingly picturesque by-world, where there are many illuminated and splendid fragments of Nature's story. He who visits this section will first be attracted by an array of rock-formations, and, wander where he will, grotesque and beautiful shapes in stone will frequently attract and interest his attention.

The rock-formation is made up of mixtures of very unequally tempered rock metal, which weathers in strange, weird, and impressive shapes. Much of this statuary is gigantic and uncouth, but some of it is beautiful. There are minarets, monoliths, domes, spires, and shapeless fragments. In places there are, seemingly, restive forms not entirely free from earth. Most of these figures are found upon the crests of the mountains, and many of the mountain-ridges, with their numerous spikes and gigantic monoliths, some of which are tilted perilously from the perpendicular, give one a feeling of awe. Some of the monoliths appear like broken, knotty tree-trunks. Others stand straight and suggest the Egyptian obelisks. They hold rude natural hieroglyphics in relief. One mountain, which is known as Turret-Top, is crowned with what from a distance seems to be a gigantic picket-fence. This fence is formed by a row of monolithic stones.

One of the most remarkable things connected with this strange locality is that its impressive landscapes may be overturned or blotted out, or new scenes may be brought forth, in a day. The mountains do not stand a storm well. A hard rain will dissolve ridges, lay bare new strata, undermine and overturn cliffs. It seems almost a land of enchantment, where old landmarks may disappear in a single storm, or an impressive landscape come forth in a night. Here the god of erosion works incessantly and rapidly, dissecting the earth and the rocks. During a single storm a hilltop may dissolve, a mountain-side be fluted with slides, a grove be overturned and swept away by an avalanche, or a lake be buried forever. This rapid erosion of slopes and summits causes many changes and much upbuilding upon their bases. Gulches are filled, water-courses invaded, rivers bent far to one side, and groves slowly buried alive.

One night, while I was in camp on the slope of Mt. Coxcomb, a prolonged drought was broken by a very heavy rain. Within an hour after the rain started, a large crag near the top of the peak fell and came crashing and rumbling down the slope. During the next two hours I counted the rumbling crash of forty others. I know not how many small avalanches may have slipped during this time that I did not hear. The next day I went about looking at the new landscapes and the strata laid bare by erosion and landslide, and up near the top of this peak I found a large glaciated lava boulder. A lava boulder that has been shaped by the ice and has for a time found a resting-place in a sedentary formation, then been uplifted to near a mountain-top, has a wonder-story of its own. One day I came across a member of the United States Geological Survey who had lost his way. At my camp-fire that evening I asked him to hug facts and tell me a possible story of the glaciated lava boulder. The following is his account:—

The shaping of that boulder must have antedated by ages the shaping of the Sphinx, and its story, if acceptably told, would seem more like fancy than fact. If the boulder were to relate, briefly, its experiences, it might say; "I helped burn forests and strange cities as I came red-hot from a volcano's throat, and I was scarcely cool when disintegration brought flowers to cover my dead form. By and by a long, long winter came, and toward the close of it I was sheared off, ground, pushed, rolled, and rounded beneath the ice. 'Why are you grinding me up?' I asked the glacier. 'To make food for the trees and the flowers during the earth's next temperate epoch,' it answered. One day a river swept me out of its delta and I rolled to the bottom of the sea. Here I lay for I know not how long, with sand and boulders piling upon me. Here heat, weight, and water fixed me in a stratum of materials that had accumulated below and above me. My stratum was displaced before it was thoroughly solidified, and I felt myself slowly raised until I could look out over the surface of the sea. The waves at once began to wear me, and they jumped up and tore at me until I was lifted above their reach. At last, when I was many thousand feet above the waves, I came to a standstill. Then my mountain-top was much higher than at present. For a long time I looked down upon a tropical world. I am now wondering if the Ice King will come for me again."

The Engelmann spruce forest here is an exceptionally fine one, and the geologist and I discussed it and trees in general. Some of the Indian tribes of the Rockies have traditions of a "Big Fire" about four centuries ago. There is some evidence of a general fire over the Rockies about the time that the Indian's tradition places it, but in this forest there were no indications that there had ever been a fire. Trees were in all stages of growth and decay. Humus was deep. Here I found a stump of a Douglas spruce that was eleven feet high and about nine feet in diameter. It was so decayed that I could not decipher the rings of growth. This tree probably required at least a thousand years to reach maturity, and many years must have elapsed for its wood to come to the present state of decay. Over this stump was spread the limbs of a live tree that was four hundred years of age.

Trees have tongues, and in this forest I interviewed many patriarchs, had stories from saplings, examined the mouldy, musty records of many a family tree, and dug up some buried history. The geologist wanted in story form a synopsis of what the records said and what the trees told me, so I gave him this account:—

"We climbed in here some time after the retreat of the last Ice King and found aspen and lodgepole pine in possession. These trees fought us for several generations, but we finally drove them out. For ages the Engelmann spruce family has had undisputed possession of this slope. We stand amid three generations of mouldering ancestors, and beneath these is the sacred mould of older generations still.

"One spring, when most of the present grown-up trees were very young, the robins, as they flew north, were heard talking of strange men who were exploring the West Indies. A few years later came the big fire over the Rockies, which for months choked the sky with smoke. Fire did not get into our gulch, but from birds and bears which crowded into it we learned that straggling trees and a few groves on the Rockies were all that had

A GRASS-PLOT AMONG ENGELMANN SPRUCE

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escaped with their lives. Since we had been spared, we all sent out our seed for tree-colonies as rapidly as we could, and in so doing we received much help from the birds, the squirrels, and the bears, so that it was not long before we again had our plumes waving everywhere over the Rockies. About a hundred and sixty years ago, an earthquake shook many of us down and wounded thousands of others with the rock bombardment from the cliffs. The drought a century ago was hard on us, and many perished for water. Not long after the drought we began to see the trappers, but they never did us any harm. Most of them were as careful of our temples as were the Indians. While the trappers still roamed, there came a very snowy winter, and snow-slides mowed us down by thousands. Many of us were long buried beneath the snow. The old trees became dreadfully alarmed, and they feared that the Ice King was returning. For weeks they talked of nothing else, but in the spring, when the mountain-sides began to warm and peel off in earth-avalanches, we had a real danger to discuss.

"Shortly after the snowy winter, the goldseekers came with their fire havoc. For fifty years we have done our best to hold our ground, but beyond our gulch relentless fire and flashing steel, together with the floods with which outraged Nature seeks to revenge herself, have slain the grand majority, and much, even, of the precious dust of our ancestors has been washed away."

With the exception of the night I had the geologist, my days and nights in this locality were spent entirely alone. The blaze of the camp-fire, moonlight, the music and movement of the winds, light and shade, and the eloquence of silence all impressed me more deeply here than anywhere else I have ever been. Every day there was a delightful play of light and shade, and this was especially effective on the summits; the ever-changing light upon the serrated mountain-crests kept constantly altering their tone and outline. Black and white they stood in midday glare, but a new grandeur was born when these tattered crags appeared above storm-clouds. Fleeting glimpses of the crests through a surging storm arouse strange feelings, and one is at bay; as though having just awakened amid the vast and vague on another planet. But when the long, white evening light streams from the west between the minarets, and the black buttressed crags wear the alpine glow, one's feelings are too deep for words.

The wind sometimes flowed like a torrent across the ridges, surging and ripping between the minarets, then bearing down like an avalanche upon the purple sylvan ocean, where it tossed the trees with boom, roar, and wild commotion. I usually camped where it showed the most enthusiasm. Here I often enjoyed the songs or the fierce activities of the wind. The absence and the presence of wind ever stirred me strongly. Weird and strange are the feelings that flow as the winds sweep and sound through the trees. The Storm King has a bugle at his lips, and a deep, elemental hymn is sung while the blast surges wild through the pines. Mother Nature is quietly singing, singing soft and low while the breezes pause and play in the pines. From the past one has been ever coming, with the future destined ever to go when, with centuries of worshipful silence, one waits for the winds in the pines. Ever the good old world grows better both with songs and with silence in the pines.

Here the energy and eloquence of silence was at its best. That all-pervading presence called silence has its happy home within the forest. Silence sounds rhythmic to all, and attunes all minds to the strange message, the rhapsody of the universe. Silence is almost as kind to mortals as its sweet sister sleep.

A primeval spruce forest crowds all the mountain-slopes of the Uncompahgre region from an altitude of eight thousand feet to timber-line. So dense is this forest that only straggling bits of sunfire ever fall to the ground. Beneath these spiry, crowding trees one has only "the twilight of the forest noon." This forest, when seen from near-by mountain-tops, seems to be a great ragged, purple robe hanging in folds from the snow-fields, while down through it the white streams rush. A few crags pierce it, sun-filled grass-plots dot its expanse at intervals, and here and there it is rent with a vertical avalanche lane.

Many a happy journey and delightful climb I have had in the mountains all alone by moonlight, and in the Uncompahgre district I had many a moonlight ramble. I know what it is to be alone on high peaks with the moon, and I have felt the spell that holds the lonely wanderer when, on a still night, he feels the wistful, tender touch of the summer air, while the leaves whisper and listen in the moonlight, and the moon-toned etchings of the pines fall upon the magic forest floor.

One of the best moonlit times that I have had in this region was during my last visit to it. One October night I camped in a grass-plot in the depths of a spruce forest. The white moon rose grandly from behind the minareted mountain, hesitated for a moment among the tree-spires, then tranquilly floated up into space. It was a still night. There was silence in the treetops. The river near by faintly murmured in repose. Everything was at rest. The grass-plot was full of romantic light, and on its eastern margin was an etching of spiry spruce. A dead and broken tree on the edge of the grass-plot looked like a weird prowler just out of the woods, and seemed half-inclined to come out into the light and speak to me. All was still. The moonlit mist clung fantastically to the mossy festoons of the fir trees. I was miles from the nearest human soul, and as I stood in the enchanting scene, amid the beautiful mellow light, I seemed to have been wafted back into the legend-weaving age. The silence was softly invaded by zephyrs whispering in the treetops, and a few moonlit clouds that showed shadow centre-boards came lazily drifting along the bases of the minarets, as though they were looking for some place in particular, although in no hurry to find it. Heavier cloud-flotillas followed, and these floated on the forest sea, touching the treetops with the gentleness of a lover's hand. I lay down by my camp-fire to let my fancy frolic, and fairest dreams came on.

It was while camping once on the slope of Mt. Coxcomb that I felt most strongly the spell of the camp-fire. I wish every one could have a night by a camp-fire,—by Mother Nature's old hearthstone. When one sits in the forest within the camp-fire's magic tent of light, amid the silent, sculptured trees, there go thrilling through one's blood all the trials and triumphs of our race. The blazing wood, the ragged and changing flame, the storms and calms, the mingling smoke and blaze, the shadow-figures that dance against the trees, the scenes and figures in the fire,—with these, though all are new and strange, yet you feel at home once more in the woods. A camp-fire in the forest is the most enchanting place on life's highway by which to have a lodging for the night.

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